1859 FIFTY-NINTH YEAR 1917

AMERICAN GAS ENGINEERING JOURNAL

FORMERLY

AMERICAN GAS LIGHT JOURNAL

VOL. CVII., NO. 15
WHOLE No. 3110

NEW YORK, SATURDAY, OCTOBER 13, 1917

Subscription $3 per year
$4 Canada $5 Foreign

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We are receiving orders for back numbers of the AMERICAN GAS ENGINEERING JOURNAL every day, and in nearly every case we are unable to fill them.

The issues ordered are those which have contained articles especially written for the JOURNAL, and which are of immediate practical value to the manager of some department of the up-to-date gas company.

In most cases these requests come from gas company subscribers who want one or two extra copies for clipping.

We would request, therefore, that our subscribers look over their copy as soon as received, and if they wish any extra copies of that issue, to advise us at once. It is our desire to meet the demands of our subscribers first.

AMERICAN GAS LIGHT JOURNAL, INC.
Publishers
42 Pine Street New York

INDEX TO CONTENTS, PAGE 332 ADVERTISERS' INDEX, PAGE 18

KOPPERS

BY-PRODUCT
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The most efficient method of carbonizing coal is in KOPPERS OVENS and the best coke and by-products are produced by this process.

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OCT 16 1917

AMERICAN
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Vol. CVII, No. 15 NEW YORK, OCTOBER 13, 1917 Whole No. 3110

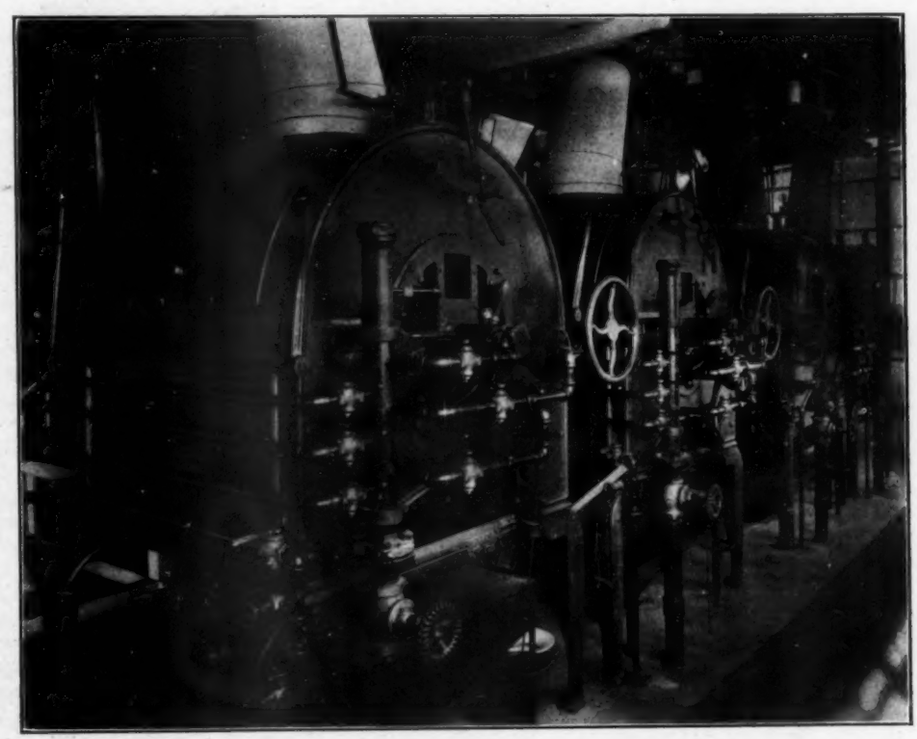
Time Near at Hand When Practically All of Country's Coffee Will Be Gas Roasted

Gas Installation Helps Houston, Texas, Plant to Land One of Largest Individual Orders for Roasted Coffee Ever Placed—Gas Company Has Secured All of the Business of This Kind Available in the City, Adding Approximately 750,000 Cu. Ft. per Month to Its Sales

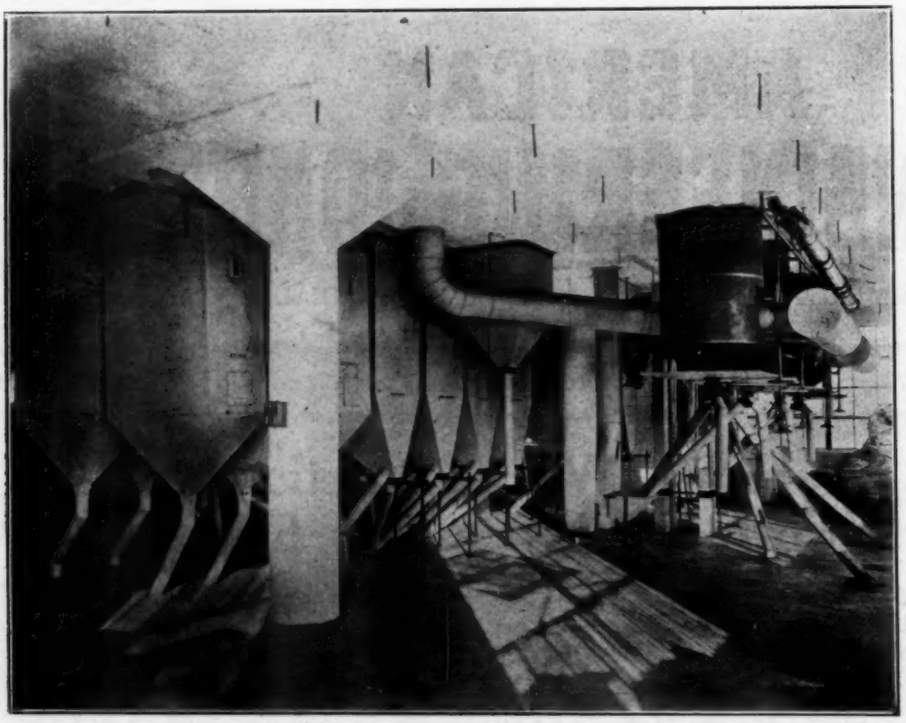
By H. E. DANNER
Commercial Manager, Houston Gas & Fuel Company, Houston, Texas

The biggest available prospect for industrial fuel gas in the city of Houston, Texas, according to the judgment of F. D. Murphy, general manager of the Houston Gas & Fuel Company, at the time the writer assumed the position of commercial manager, was the Cheek-Neal Coffee Company, which was then doing its roasting with coke. The advantages of gas over coke as a fuel for this work were then, as now, overwhelming, but the senior member of the firm, who resided in a distant city, was not convinced of this fact, and, besides, the coke-burning installation represented a very considerable investment. To-day the Houston company has not only the business of this firm on its lines, a guaranteed minimum monthly consumption of 350,000 cu. ft., and running as high as 560,000 cu. ft. during the past six and one-half months, but all the business in this line of work available in the city, representing an additional 400,000 cu. ft. approximately per month.

Our first endeavor was to gain the confidence of J. W. Neal, the vice-president and general manager, and his superintendent of the roasting department, Gus Lawrence. This acquaintance gave us free access to the plant at all times so that we could make personal observations of operation. We were soon able to offer some practical suggestions. In the meantime we ob-



THESE 2-BAG GAS-FIRED ROASTERS HAVE A CAPACITY OF 30,000 LB. ROASTED EVERY 10 HOURS.



COOLING AND STORAGE BINS—LARGE PIPE IN CEILING IS 8-IN. GAS HEATER LOCATED DIRECTLY UNDER ROASTERS, WHICH ARE ON FLOOR ABOVE.

tained a list of roasters in various location throughout the country using gas for roasting, the rate for gas, cost of coke, labor, etc. With this information at hand we were then in position to intelligently discuss the installation of gas-fired roasters to compete with their battery of coke roasters, feeling confident that a test would prove favorable and lead to a complete gas equipment.

This plan did not mature and we later learned that J. O. Cheek, senior member of the firm, who personally superintended the operation of their other two plants, located at Nashville, Tenn., and Jacksonville, Fla., was not favorable towards gas roasters or any expenditures at that time. A ray of hope appeared, however, upon learning that Mr. Neal intended going to Nashville to have a conference with his partner on general business, shortly before the Fifth Annual Convention of the National Coffee Roasters Association, held in St. Louis, Nov. 10, 1915. We furnished Mr. Neal all the data we had to carry with him, so that he and his partner could consider the matter in a comprehensive manner. We were greatly encouraged to learn, upon Mr. Neal's return, that Mr. Cheek was willing to give some consideration to the installation of gas roasters, and even more agreeably surprised and encouraged when Mr. Neal confided in us the secret of their intention to construct a modern five-story coffee roasting plant, as a result of their conference. We also learned that Mr. Cheek intended to attend the St. Louis Convention. At this point we realized that greater effort and attention was necessary, inasmuch as Mr. Cheek was not very favorable towards gas roasters at the outset, and that an all-gas installation in their new plant would be one of the largest and most permanent consumers on our lines.

Coffee-Roasting Industry Awakening to Advantages of Gas

Greater encouragement was ours after the convention, for a number of men well versed in the coffee industry gave convincing evidence of the economy in operation and the superior quality of gas-roasted coffee. One of the most convincing addresses was delivered by F. A. Stephens, of St. Louis, and can be found in the convention number of the *Tea and Coffee Trade Journal*.

We were more than pleased to know Mr. Cheek had heard these addresses and had taken part in their discussion. We were quick to bring these articles to the attention of Mr. Neal, who by this time was eager to learn all about the use of gas and its comparative cost with other fuel in contemplating the plans for their new plant.

The construction of their new plant was kept secret from the public until a building site was secured, giving them proper railroad facilities and a more prominent commercial location than where their old plant was located. I am pleased to mention that our advice was valued by Mr. Neal in securing my opinion in regard to the location of their new plant. Their final decision was a location within nine blocks of our 3,000,000 cu. ft. gas holder, where we could maintain a constant steady pressure of approximately 5 to 6 in. water pressure at all times. After a number of interviews with Mr. Neal and a later conference with both him and his partner, Mr. Cheek, regarding the cost of equipment, gas rate, etc., it was decided by them to receive bids from the manufacturers of coffee roasting machinery for the installation of a thoroughly modern equipment. Their final decision was in favor of the gas equipment and the contract was awarded to the Huntley Manufacturing Company of Silver Creek, N. Y. When completed, their new plant represented the most modern in construction, equipment and efficiency to be found anywhere.

This installation consisted of four monitor six-burner, two-bag capacity machines and is situated on the fifth floor of their building. For this equipment we installed a 4-in. service, locating the meters on the first floor with a 4-in. riser extending to the fourth floor, where an 8-in. header is located on the ceiling directly under the roasters with a 3-in. connection to each machine. The accompanying illustration gives some idea of this installation, which is more convenient and sanitary, permitting the operator to work with greater dispatch and certainty than with a coke or coal installation. Other photographs are shown herewith describing the various stages of operation where the finished

product is delivered to the consumer without the necessity of being touched with human hands.

The meter equipment consists of one 150 Lt. A. Griffin and one 60 Lt. A. Griffin. Weekly readings are taken of these meters to check any inaccuracy of registration.

Provision Made for Installation of Additional Machines

Provision was made for the installation of four additional machines, should future demands warrant the necessity. Two of these units are likely to be installed at an early date.

The average time consumed for a two-bag roast is 15 minutes. The average cost of gas per bag in Houston is from 8 to 12 cents. In some cities the cost is less, for in Houston the net rate of $1 per 1,000 cu. ft. prevails up to 100,000 cu. ft. consumed. In actual tests recently made, the shrinkage on the gas roast showed a decided advantage over coke or coal roasts. The gas roast was better developed at a slightly lighter shade than the coal or coke, and no difficulty was experienced in detecting the difference in flavor of a cup of coffee

Houston, Texas,
September 15th, 1917.

Mr. H.E. Danner, Commercial Manager,
Houston Gas & Fuel Company,
Houston, Texas.

Dear Sir:

After reviewing our results of the past six months, we feel it is only fitting to convey to you an expression of our opinion concerning the installation of gas Coffee Roasters in our new plant, using gas entirely for fuel.

I have just had occasion to figure our cost per bag for roasting with gas and in comparing the result with the estimate made by you when the installation was proposed, I find our actual cost to be approximately two cents lower per bag than your estimate.

It is needless to state that we are highly gratified at this result. Gas is cleaner and quicker, with practically no heat to contend with in our Roasting Room, and its simplicity adds greatly to the efficiency of our plant.

We feel fortunate in having this modern equipment, for otherwise we would not be able to handle the volume of business we now have.

Assuring you that we are more than pleased in every particular with gas machinery for roasting our coffee, we are,

Very truly yours,

Cheek-Neal Coffee Company.

J. W. Neal

Vice President & Manager.

WHAT THE CUSTOMER THINKS OF THE GAS INSTALLATION

made from the gas roast. The gas roast appeared to have more flavor and character.

From these plain facts, recognized by the coffee roasters of the country, it is reasonable to expect that the time is near at hand when practically all coffee will be gas roasted. We are pleased to state that the six coffee roasting plants in Houston at present are all using gas fuel.

The Cheek-Neal Coffee Company have guaranteed us with a minimum monthly consumption of 350,000 cu. ft. and we show herewith their monthly consumption for the first 6½ months of this year:

A SMALL CORNER OF THE GREEN COFFEE STORAGE FLOORS

Jan. 1917	{ Meters installed for testing. Roasting began Feb. 15.	
Feb.	"	127,100
March	"	504,400
April	"	371,300
May	"	560,100
June	"	369,500
July	"	356,700
Aug.	"	497,600
Total		2,786,700 Cu. Ft.

Other coffee roasting plants in Houston are showing a substantial increase in business, and there are splendid indications for a continued demand in this branch of trade.

The following equipment giving gas consumed is shown simply to demonstrate how industrial gas sales can be built up through concentration of effort and everlastingly keeping on the trail of new business:

International Coffee Company: Installation consists of three monitor six-burner two-bag capacity machines, capable of roasting approximately 3,600 lb. per day.

		Gas consumed
Jan. 1917		189,400
Feb.	"	156,900
March	"	145,800
April	"	180,700
May	"	171,100
June	"	405,200
July	"	166,300
Aug.	"	369,500
Total		1,784,900 Cu. Ft.

Guatemala Coffee Company: The installation consists of one monitor 6-burner machine and one monitor 4-burner machine.

		Gas consumed
Jan. 1917		42,300
Feb.	"	45,800
March	"	42,700
April	"	55,200
May	"	75,300
June	"	90,200
July	"	69,900
Aug.	"	55,800
Total		477,200 Cu. Ft.

Magnolia Coffee Company: The installation consists of one monitor 6-burner machine.

	Gas consumed
Jan. 1917	86,500
Feb. "	93,000
March "	53,700
April "	86,400
May "	82,800
June "	135,200
July "	50,100
Aug. "	65,400
Total	653,100 Cu. Ft.

UNITED STATES TEA AND COFFEE COMPANY: The installation consists of one monitor 4-burner machine.

	Gas consumed
Jan. 1917	17,700
Feb. "	17,800
March "	13,500
April "	13,900
May "	12,000
June "	11,400
July "	13,600
Aug. "	10,800
Total	110,700 Cu. Ft.

SOUTHERN TEA AND COFFEE COMPANY: The installation consists of one Lambert machine of 2-bag capacity.

	Gas consumed
Jan. 1917	15,700
Feb. "	12,500
March "	11,000
April "	12,900
May "	10,600
June "	5,300
July "	7,400
Aug. "	4,800
Total	80,200 Cu. Ft.

With the entry of this country into the world war and the consequent increase in cost of other fuel, the value of gas was most forcibly realized by local coffee roasting companies. With the rapid advance of coal and coke, the coffee roasters would have been badly handicapped in figuring costs, and consequently the consumer would have suffered an additional war tax.

The price of gas remained unchanged, and fortunately for the Cheek-Neal Coffee Company, for, due to the efficiency in operation with gas fuel, they have recently been awarded what is considered one of the largest individual orders for roasted coffee in the history of the coffee industry.

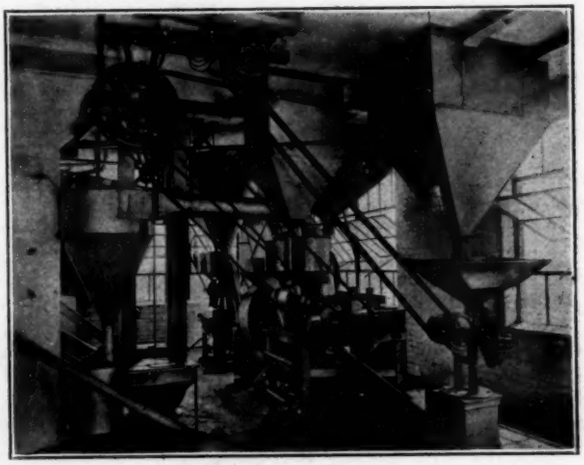
This order was for 1,000,000 lb. of gas-roasted coffee to be delivered to the various army camps in Texas. At the time this order was secured they still had orders on hand for the army amounting to 750,000 lb. in addition to keeping up with their regular business.

This tremendous increase in business made it necessary for putting on a night shift and working the plant night and day, turning out approximately 60,000 lb. of roasted coffee every 24 hours.

100 PER CENT EFFICIENCY SECURED

With the establishment of military cantonments in Texas and throughout the country, the world's greatest beverage must play its part and a soldier must have his coffee and plenty of it.

In summing up the coffee roasting business in Houston we have scored 100 per cent in securing all of this class of business, from which we show a gas consumption of 5,892,800 cu. ft. for the first eight months of 1917, with good prospects for future increases.



SECTIONAL VIEW OF GRINDING DEPARTMENT.

Systematic Salesmanship

G. P. Egleston Points Out Logic of Energetic Sales Pushing in Times of Business Depression and High Prices

In all large and successful industrial enterprises, the sales department is recognized as the heart of the business, the center that radiates life blood and enthusiasm to the entire company, the department that makes it possible for the company to reach out and expand. For this reason co-operation with the sales department by the other departments is known to be essential, asserts G. P. Egleston in his paper on "Systematic Salesmanship," from which the following has been abstracted, presented at the 1917 Convention of the Pacific Coast Gas Association. The harder the times the greater the responsibility placed upon this department and the more generous the support given.

NEED OF SALES IN DULL TIMES

The sales department of a gas company is just as essential to its well-being, but mainly for the reason that tangible evidence of the achievements is somewhat difficult to determine, and because its operation has rarely been properly systematized the sales department has never been placed upon a proper footing, and, instead of working on a definite appropriation based on the estimated increased revenue secured or desired, it has been regarded merely as an expense justifiable in times of prosperity but an unwarranted burden during periods of depression.

Anyone who will spend a little time in careful consideration of the subject will readily appreciate the fallacy of this attitude.

As an example: Let us imagine for a moment a gas company with a plant of a total valuation of $250,000 on which interest and depreciation are figured at 12 per cent per annum. The monthly output of this company at the time under consideration is 6,000,000 cu. ft., the total cost per 1,000 cu. ft. being $1.166, made up as follows:

Production	.38
Transmission and distribution	.12
Commercial expenses	.10
General expenses and taxes	.15
Interest and depreciation on investment	.416
Total	$1.166

We will further imagine that the directors of this company, owing to the increasing cost of labor and material, find themselves apparently facing a situation in which the total cost is rapidly approaching the revenue. Two alternatives face them; the one usually accepted being retrenchment, with the immediate cutting down of the new business endeavors. The other one, that is not generally given proper consideration, is the extension of the previous sales policy in an endeavor to secure an additional consumption of gas.

Let us presume that the latter policy has been followed and at the end of five years the output of the company has been doubled, this additional output necessitating a further capital expenditure of $100,000, making a total valuation upon which interest must now be paid of $350,000. It is certain that under ordinary circumstances this additional output would considerably reduce the actual cost of delivering gas to the holder, but, allowing for an increase in the cost of fuel, etc., we will assume that the cost of production per 1,000 remains the same. We will further assume that the total distribution, commercial, general expenses and taxes are increased 50 per cent, but, owing to the additional output, the expense per 1,000 feet sold shows an actual reduction, and in place of a total cost per 1,000 cu. ft. of $1.166 five years previously, we now have a total cost of only .947 made up as follows:

Production	.38
Transmission and distribution	.09
Commercial expense	.075
General expenses and taxes	.112
Interest and depreciation on investment	.29
Total	$ .947

The figures given in the above example, though only approximate, are conservative and show only too clearly that the policy usually adopted of cutting down the sales department in periods of depression is but to aggravate the condition, and I would suggest that an analysis something on the above lines would be to the interest of the executives of our companies before allowing any policy of retrenchment to affect the new business, or any other department.

Getting Full Consumption from Appliances Sold

The average sales department of a gas company has been handicapped by the fact that no definite relation between the cost of production of new business and the revenue derived therefrom has ever been established. It is obvious that under ordinary circumstances the potential consumption of gas due to the installation of any appliance has some definite future value to the company, and that, except under very unusual circumstances, this value is the same whether in periods of prosperity or depression.

On the other hand the work of the new business department is much harder during periods of business depression and at certain seasons of the year than at other times; it is therefore unfair to judge the sales manager's monthly report harshly, because during the dull season of the year his cost of securing 1,000 cu. ft. of additional consumption is greater than during the spring and early summer, and the net value of his efforts can only be judged by his average cost over a period of twelve months in comparison with the increased revenue produced.

Owing to the many factors which enter into a mathematical determination of the allowance which can be made for new business expenditure per 1,000 cu. ft. estimated consumption, I will not endeavor to solve the question here but rather leave the problem to the statisticians of companies interested, but I do go on record that some definite amount based on estimated consumption should be appropriated to the sales department for its maintenance. This appropriation, as in the case of the operating and other departments, being based solely on the value of the services of the department to the company.

A Parallel in Insurance Business

A somewhat parallel condition is found in the life insurance business, as the revenue derived from any particular policy holder is largely an indeterminate factor; the revenue does not, however, cease with the delivery of the policy but continues for a more or less indefinite period. It is safe to say that the cost to the insurance company of securing new policyholders is not less than the entire first year's premium; therefore, the gas company should well be able to spend on its sales department at least a large percentage of the revenue due to the estimated increased consumption secured by the departments during the year.

A definite appropriation, based on principles similar to that outlined above would stabilize our sales departments, enable them to plan and execute their work in a definite manner, and bring about a more complete understanding between our executives and sales managers.

The question as to whether companies should sell appliances is very definitely settled in the writer's mind, all of his experience having been in the sales departments of companies whose policy was to sell appliances at a price which secured the co-operation of dealers insuring them a fair margin of profit. But this policy should not be allowed to interfere with any sale, periodical or otherwise, which the company may feel is justified to create the additional sale of gas.

The sale of appliances cannot be entrusted entirely to the dealer, as the volume of sales is not sufficient to allow him to employ house-to-house salesmen, an absolute necessity in every successful sales department. Further, his interest naturally ceases as soon as the immediate transaction is completed.

Sale of Appliances Less a Question of Merchandising Than of Service

The sale of gas appliances by the gas company is less a question of merchandising than it is of service. The statements of the gas salesmen, the manner of installation, the adjustment of appliances, are all matters of vital interest to the gas company. To the dealer they are of secondary importance to the sale of the appliance and collection of his bill, and it seems to me that though we all welcome the co-operation of the dealer, it is fatal to our ultimate interest to transfer to him our very real obligations at the commencement of our relations with a consumer.

The efficient sale of gas, as distinct from gas appliances, involves a careful study not only of the needs of the individual consumer, but of the community at large, and of the operating conditions of the company itself.

It is obvious that the sale of 1,000,000 cu. ft. of gas per annum, involving a capital expenditure of $100, is more valuable to the company than the sale of the same amount of gas with a capital expenditure of $500; and that, therefore, new business which requires neither

main extensions nor additional plant capacity is the most valuable to the company. It is therefore very necessary that the sales manager should be thoroughly acquainted with the location of the districts served by mains which are run to least capacity and that he should also know the peak hours of the day and the peak months of the year in order that he may center his attentions on improving the load factor, thus tending to more efficiently utilize the generating and distribution equipment. Information such as this can only be secured by close co-operation between the operating, distribution and sales departments and the head of each should fully realize that the closer the interworking of the departments the better will be the individual results achieved.

Advantage of Complete Information Beforehand

The analysis of the community necessitates a knowledge of the prospective business to be obtained therefrom. This again entails a knowledge of the requirements of the individual consumer and it is certain that a salesman working along systematic lines, knowing those of the community who have or have not such and such an appliance, can utilize his time fully 50 per cent more efficiently than the salesman who is obliged to canvass blindly a number of houses, 80 per cent of which may be already equipped with the particular appliance he is endeavoring to sell.

This information can only be secured in the first place by a careful house-to-house canvass of the territory. To assist the salesman in gathering this data special forms of house record cards should be provided, these cards not only showing the present appliances installed but further equipment for which they may become a prospect, together with a suggested date for a re-call. The cards are in duplicate, one set being filed in the office under street and number, the other being used by the salesman and filed in month and day file for re-call.

Planning the Day's Work in Advance

To most efficiently utilize salesmen some systematic method of working has been found absolutely necessary. He will take a far greater interest in his work if he has some definite plan of procedure for the day. The record card makes this possible, as a certain number of calls are laid out for him on each of which he has some definite information which will give him the greatly desired opening to create a prospect's interest.

It will be readily appreciated that in making special campaigns these cards are invaluable. For instance, during water heater week each man has before him, correctly routed, a list of every house in his district not yet provided with one of these appliances. He can therefore work intensely on this campaign throughout the week without ringing a single unnecessary door-bell, avoiding waste of time and annoyance to consumers.

Having regard to the great opportunities of heating by gas, these cards also record the type of house heating appliance at present in use, together with the fuel used. This enables any salesman to work on house heating after the regular range and water heater season is over and be practically in a position before he rings the bell to recommend the type of gas heating installation which will meet the prospect's requirements and pocketbook. For instance, if a small bungalow of three rooms is heated with coal stoves, it is possible that some kind of vented radiator can be cheaply and satisfactorily installed. If, on the other hand, a large house is heated by a system of hot water radiators, the prospect would be most likely to consider either a gas fired hot water boiler, or some system using concealed piping only.

These examples give but a small idea of the value of a system of this character, but sufficient has been said to show its great possibilities.

Offering Special Inducements

The policy of increasing sales by offering some special inducement from time to time is one that is almost generally adopted in every branch of merchandising, and there is no doubt that such sales or inducements have a psychological value quite out of proportion to their cost, but such sales or inducements depend entirely for their value upon the manner in which they are presented and the selection of a proper season.

Examples of the type of inducement which will be in everybody's mind are the gas range and water heater weeks of the National Commercial Gas Association; these sales owe all their effectiveness to the fact that during this one week the gas companies throughout the country force the thought "gas range" or "gas water heater" into the mind of every housewife, with, as a rule, the additional inducement of a reduction in price. The effect of this is to bring to the culminating point at the moment the persistent efforts of the sales department during the previous months and unless some such special effort were made it is possible that much of this work would be lost because the interest of the housewife was never excited to the right pitch. A gas range week without the steady effort of the salesman throughout the winter would lose 80 per cent of its effectiveness and this should be realized when the results of any such special sale are discussed.

Special sale weeks are not, however, by any means the only inducement that can be made to a prospective consumer; it may well be doubted if they are even the most valuable. For instance, we know of hundreds of gas ranges in every community which stand beside wood ranges, and are used only during the Summer months; it is certain, therefore, that any inducement that can be made to a consumer to entirely replace her wood range with a gas range nearly doubles the effectiveness of the latter appliance. The most usual inducement to fulfill this purpose is to make allowance either in cash or as a discount on the purchase price of gas appliances for the wood range which is removed from the premises, and generally scrapped; this policy, however, does not make it obligatory upon the consumer to purchase a kitchen heater. The consequence is in many cases that when Winter comes need of heat in the kitchen is felt and some small wood range with oven is purchased and no object has been achieved by making the allowance. A more desirable method would appear to be the free exchange of a kitchen heater for a wood stove to every consumer purchasing a cabinet gas range; when this is done it is most unlikely that the consumer would ever consider reversion to the old type of appliance.

The value of the demonstrator as part of the service organization is already recognized by most gas companies, but few take advantage of her potential capacity for indirectly inducing sales.

One method of taking advantage of this capacity is adopted by one company, at least, to the writer's knowledge. The demonstrator of this company calls upon the consumer immediately after the range is set,

sees that the range is properly adjusted and the consumer understands in general the operation of the range; she then informs the consumer that she would be glad to give a practical demonstration of the operation of the range by preparing and cooking an entire meal, including some novel dishes. She, however, explains that as her time is valuable to the company by which she is employed, it insists that at least six of her neighbors—preferably non-gas users—be present to witness the demonstration. At this time the demonstrator not only cooks the meal as promised, but explains fully the advantage of gas over any other form of fuel, also giving the consumer a practical lesson in the reading of the gas meter and the small cost of cooking with gas by reading the meter before and after the meal is cooked.

This method has proven a pronounced success, not only in educating the consumer but in inducing additional sales, in fact so satisfactory have the results been that it is proposed to develop a series of community demonstrations in private homes, clubs, or churches, on the same plan.

That the sales power of the press is amenable to scientific treatment has been abundantly proven in the results achieved by advertising to-day as compared with those of even twenty years ago. This, perhaps, is my strongest argument in favor of the introduction of proper system into the sales department as a whole, for that which has been achieved in advertising can certainly be equally achieved in the other branches of the department.

Existence Dependent Upon Advertising

It is scarcely credible that twenty years ago there were few, if any, business enterprises who would dare to believe that their very existence should depend upon the results achieved by their advertising or that any firm should spend the enormous sums that are a common thing to-day; yet many firms of National reputation will willingly admit that by far the greater part of their revenue is the result—is, indeed, directly traceable to their investment in the varied forms of publicity.

If, therefore, newspaper and other publicity is a paying proposition with the manufacturer whose product is more or less liable to displacement by a competing product, it should be far more so to the gas company whose commodity is almost shielded from competition and whose profits on the sale of gas from an appliance continue for an indefinite period.

Though it is not recommended that gas companies should take space in the daily press without consideration of the cost involved, it is suggested that a more extended use might be made of newspaper publicity, and, what is more to the point, better use might be made of the spaces already reserved by almost every company.

The essentials of a successful advertisement are easily classified. First, it must attract. Second, it must create the interest of the reader in the article to be sold. Third, it must create the desire to buy. Fourth, it should, as a rule, state clearly the price and the easiest way to obtain.

The exception to the fourth item is a high-priced article, in which case it is preferable to allow a salesman to more fully explain its merits before mentioning a sum which might otherwise kill the interest of the prospect.

The illustrated advertisement has undoubtedly a greater appeal to the average reader than that which consists only of plain copy, and as the majority of manufacturers are willing to furnish cuts free of charge to those companies who do not feel justified in purchasing their own, it would appear to be wise practice to make somewhat free use of this service, as the copy can, as a rule, be easily modified to harmonize with the cut.

Co-operation and Enthusiasm

It is impossible in a paper of this character to enter more fully into the requisites of efficient publicity, but the writer feels strongly that it is a matter which deserves the earnest attention of every sales manager.

Though the necessity of system in the sales department has been the subject most in the writer's mind during the preparation of this paper, he does not desire to leave the impression that system alone can make a successful department. Two other factors go hand in hand with it—co-operation and enthusiasm. Without these the most highly developed sales system will come to naught.

Co-operation means that every employee must realize that it is his duty to assist in increasing the company's output, just as much as it is that of any salesman; and the officials of the company, on the other hand, should in some way express their appreciation of such co-operation on the part of employees. This appreciation need not take the form of a monetary reward, even a word of acknowledgment being sufficient to encourage every right-minded man in this little recognized, but still exceedingly important, aid to the company's success.

This spirit of co-operation can be most strongly developed if every individual employee can be brought to realize that his actual salary depends largely upon the results achieved by the sales department, for it is certain that the generosity of the company to its employees in the matter of salaries depends largely upon the net revenue.

If system becomes almost helpless without co-operation, doubly so do both become without enthusiasm. There are many of us who have seen sales departments achieve results without system and without co-operation but with a world of enthusiasm. I doubt if any of us, however, have ever heard of a successful sales organization built up on system and co-operation alone.

The sales department of the future and the one that will make the biggest records is the one that most successfully combines all three qualities—system, co-operation, enthusiasm.

But the greatest of these is enthusiasm!

Pouring Asphalt Varnish Inside Vent Piping to Secure Durability

Where compelled to run vent pipes for stoves, water heaters or gas radiators and the job is of such a nature that you cannot secure a price from your customer to put in either galvanized, wrought-iron pipe or a regular flue, and where the vent pipe will be exposed, use No. 26 gauge galvanized leader pipe in 10-ft. lengths, solder the joints together, placing the male end looking downward, and then pour asphalt varnish inside of pipe rolling it so it is thoroughly coated. A pipe so treated will last for a number of years.—*Suggestion furnished Wrinkle Department of Pacific Coast Gas Association by H. R. Bashford.*

How the Gas Companies are Helping the Nation

The Bridgeton Gas Light Company, serving Bridgeton, N. J., in addition to participation in loans and Red Cross contributions, has put itself strongly behind the food conservation movement. In order to assist its employees in carrying out efforts along these lines the superintendent, Jacob B. Jones, organized a club and financed the purchase of several acres of potatoes, a committee was sent out to engage potatoes while they were still in the ground, and later another committee went out and sorted the potatoes as fast as they were dug. Following this the company sent automobiles to haul the potatoes into town and distribute them to the homes of its employees in accordance with the number of bushels ordered by each man. This club plan worked out very satisfactorily for the interests of the men and payment has been arranged suiting their convenience. Besides taking this precaution against food scarcity most of the employees joined in the garden conservation of home products and raised sufficient food for their table supply, in many instances having such a quantity that vegetables and fruits were canned and stored away for this winter. Perhaps the most interesting garden that aroused keen competition was one that the superintendent arranged for on spare ground at the rear of one of the gas holders. This furnished fresh vegetables in season.

The Jersey Shore Gas Company, serving approximately 900 consumers in Jersey Shore, Pa., employees subscribed $300 to the first Liberty Loan. H. Q. Staver is superintendent.

H. C. Wilder, of the Malone Light & Power Company, serving Malone, N. Y., has been commissioned a captain in the country's military forces. Two of the company's employees have been drafted. S. G. Hunter is superintendent.

The Baton Rouge Electric Company, which furnishes gas to Baton Rouge, La., employees subscribed $1,750 to the first Liberty Loan. I. M. Stover is manager.

The Montgomery Light & Water Power Company, serving Montgomery, Ala., has turned its demonstration and employees' meeting room, 60x60 ft., into a rest and writing room for the Ohio soldiers who have been sent there. Ohio newspapers are provided, current magazines, writing material, card and checker tables, piano and string instruments and an occasional dance. Montgomery, with a population of 40,000, half of whom are black, wants to make the 35,000 additional that has suddenly appeared there comfortable and at home. The utility company's contribution has apparently filled the need, and as many as are able take advantage of it. It has been splendidly commented on by the local newspapers and committees behind the army cantonment activities. It is not, of course, entirely an advertising scheme, although it has been of good advantage in this way. It is more an illustration of public utilities realizing their civic duties at a time like this and participating in them in a good, whole-souled and efficient manner. The contribution of the company to the Red Cross was $1,000 and about $20,000 of the first Liberty Loan was taken by employees.

The National Committee on Gas and Electric Service, Washington, D. C., representing all of the gas, electric light and power, and water companies of the country in co-operating with the Government in war measures, has sent out notices to all the utility companies in the country urging them to utilize the exceptional sources of contact with their customers and the public which they possess through newspapers and their other advertising mediums to support the promotion of the Liberty Loan. Co-operation in the New York district is being secured through the local Utilities Liberty Loan Committee, of which George B. Cortelyou is chairman.

H. M. Byllesby & Company have formed a " Flying Squadron " in the service of the Federal Reserve Bank, Seventh District, for the active sale of Second Liberty Loan Bonds. The following members of the office staff are included: Captain Joseph H. Briggs, assistant manager Bond Department; M. E. Hosely, Bond Department; W. J. Kerr, Bond Department; William H. Dow, Engineering Department; A. J. de St. Aubin, Engineering Department; I. Newman, Engineering Department; James Madden, Accounting Department; William E. Kennedy, Auditing Department; Melburn Brant, Publicity Department. Also William G. McKenna, Isaac Milkewitch and M. Sadler, of Cummins, Roemer, Flynn, Milkewitch & McKenna, counsel to H. M. Byllesby & Company. O. G. Corns, of the Bond Department of H. M. Byllesby & Company, has been selected as a special representative of the Federal Reserve Bank for organization work in the State of Iowa. Eight other members of this Flying Squadron were recruited from executive offices of other prominent Chicago firms and include Miss M. O. Caylor, publicity writer of Montgomery Ward & Company, who is the only Bond saleswoman at present enlisted by the Federal Reserve Bank of this district.

Deepest Well a Failure

The abandonment at Candor, Pa., as a failure, of the deepest well in the world will undoubtedly mark the end of drilling of deep test wells in Pennsylvania. It was drilled by the People's Natural Gas Company and abandoned at a depth of 7,245 ft., and cost the owners more than $500,000.

Up to the present time the well drilled the deepest in the world was located near Luchow, Germany—7,239 ft. In 1912 the Bradford Deep Well Company started drilling a test well near Bradford, but when a depth of 5,830 ft. was reached drilling operations were abandoned. The latter well is the second deepest in Pennsylvania, and the fourth deepest in the world. The third deepest well in the world was drilled in West Virginia by the Hope Natural Gas Company, and no sign of oil or gas was found at 6,390 ft.—*Petroleum Gazette.*

Coffee-Grounds to Prevent Scale in Steam Boilers

To prevent scale in steam boilers, put approximately one pound of coffee-grounds to each 100 hp. rated capacity into the drums when the boiler is cleaned and allow it to remain there while the boiler is in operation, writes F. H. Asbury for the Wrinkles Department of the Pacific Coast Gas Association.

Fresh coffee may be used in the event coffee-grounds are not available, but if substituted for the grounds, do not put boiler on the line until after it has quit foaming.

Four Gas-Fired Furnaces for House Heating Installed for Every Furnace Using Other Fuel in Los Angeles

M. L. Neely Discusses Various Heating Systems in Use on the Pacific Coast—Points Out Dangers of Endorsing Appliances Without Laboratory and Practical Knowledge of Their Merits

From the early days of the natural gas fields, people have used gas for heating purposes due to its low cost and high B.t.u. value, but no particular effort was made to design a gas-fired furnace or heating system which would use this fuel economically, according to M. L. Neely, district manager for the Pacific Gas & Electric Company at Fresno, Cal., in his paper on "Gas Heating Systems," from which the following has been abstracted, presented at the 1917 convention of the Pacific Coast Gas Association. It was something of a makeshift matter of equipping the old hot air furnace, hot water or steam boiler, with some sort of burner.

It was not until 1911, so far as I can learn, that any effort was made to use artificial gas or a mixed gas for heating except in a temporary medium for quick heat such as a room heater. About this time the Rector System Gas Heating appeared on the Pacific Coast; but, unfortunately, it was not perfected mechanically before being placed on the market.

The principle was good, but agencies other than gas companies made many faulty installations, which for a long time gave the system a distinct setback.

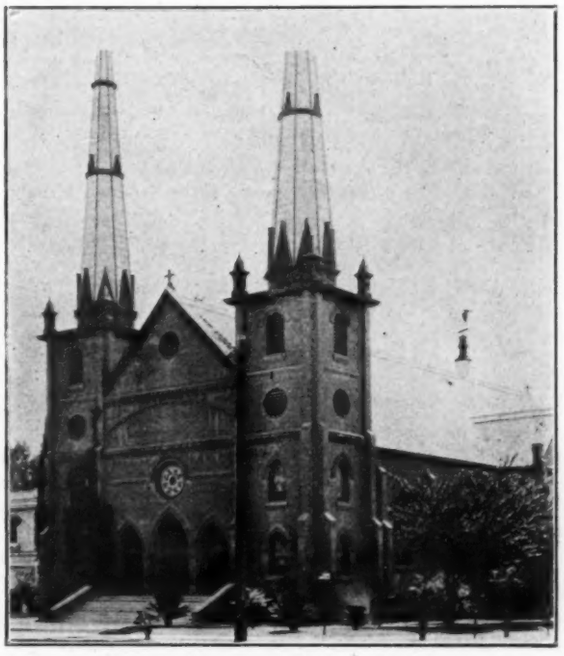
The prices on the radiation were excessive due to royalties and patent rights, and this made it difficult to sell. Fortunately, since that time, the gas companies in many locations have bought out the agencies, are now making the installations themselves, and perfect results are the outcome.

This system properly installed and given the proper periodical inspection service, will show perfect results and can compete with any other type of fuel on any score.

The numerous gas-fired steam radiators were also coming on the market at this time, but due chiefly to lack of provision for venting and to their relatively low efficiency, they were a means of convenience for a limited time only.

Setbacks to Extension of Gas-Heating Field

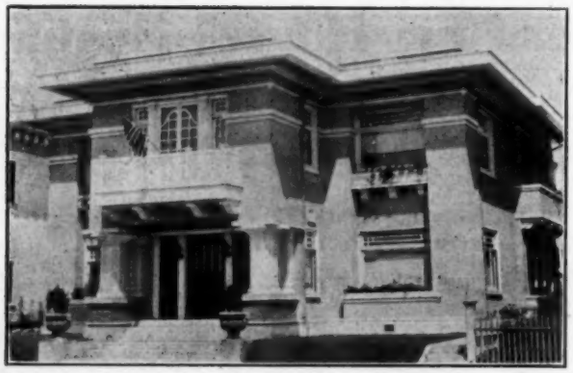
In 1912 natural gas was being delivered to the southern part of California and sold as straight natural gas or as a mixed gas. Its high B.t.u. value opened a fruitful field to gas heating systems and almost endless types were invented and put on the market—the greater percentage being absolutely inefficient and a menace and annoyance to the gas companies attempting to make installations of proper heating systems which would give satisfactory service to the consumer at a minimum cost. However, there have been developed since that time The Hawks Ventilated Gas Radiator, The Peerless, Stephens & Kane Automatically-Controlled Gas-Fired Steam Boilers, "The Gasco" Hot Air Furnace, by E. L. Hall, engineer of the Portland Gas & Coke Company, "The Perfection" Hot Air Furnace and "The Humphrey Radiantfire" Heater. All of these have given excellent results and seem to meet with the approval of gas men generally as well as the ultimate consumer wherever I have investigated.



CATHEDRAL HEATED BY GAS—HIGHEST MONTHLY BILL, $14.19.

Many types of floor furnaces have appeared on the market, but it is the writer's personal opinion, and in fact, checks with the data of most sales departments on the Coast, that their field is limited, that they are not as efficient as many other types of heating systems and yield a greater percentage of complaints than other heating systems that can be sold quite as readily as any one of these furnaces.

The latest arrival on the market is the Humphrey Radiantfire Heater. This fills a long felt want for the many unused fireplaces both in living rooms and bed rooms—unused because of the nuisance of dust and dirt resulting from burning coal or wood. The old gas log and asbestos back looked good and filled the need to a certain degree, but either was in the main ineffective or the cost of operation was high. Radiant devices have been used in England for a number of years and I am informed that 80 per cent of the physicians and surgeons in London use and recommend Radiant Gas Heaters. They use them in waiting rooms, consulting rooms and nurseries. They also recommend them for delicate people and especially those suffering from pulmonary complaints. This would seem to be strong evidence of their hygienic value in addition to heat satisfaction.



APARTMENT BUILDING AT SAN JOSE HEATED WITH GAS AT AVERAGE COST OF $40.33 PER MONTH.

The Humphrey Radiantfire has as near perfect combustion as has ever been obtained. The heater, far from being the ugly utilitarian thing of the past history of gas heating, is a decoration to any home or office and at the same time gives results, for it puts the heat on the floor where it is wanted and not deflected toward the ceiling where it is lost. To test its worth, the writer installed a No. 102 Radiantfire in a fireplace at his home and used it entirely during March to take care of a living room 20 x 16 ft. and a dining room 14 x 13 ft. The average minimum temperature for the twenty days of the test was 38 deg. The heater was used on an average of ten hours a day, maintaining a temperature of 70 deg. in the rooms. The cost per day with gas at a dollar per 1,000 cu. ft. was 31½ cents.

Where the Gas Company's Interest Begins

Heating with gas is essentially the gas company's business. "Heat with Gas" should be as familiar to the public as "Cook with Gas." A dealer's interest ceases when the installation is complete and paid for, and at this point is where the most vital interest of the gas company starts. Companies differ in opinion as to whether they should make the installation or leave it to the dealer. If it is left to the dealer, then it is distinctly up to the local company to find those dealers who will follow the directions and rules of the gas company as to installations, so that they and the consumer are protected.

A dealer should always be allowed a reasonable profit, but there is a tendency to go beyond this reasonable profit and thus prevent many installations that otherwise could have been made.

The Los Angeles Gas & Electric Corporation do not themselves install heating systems, but they have an admirable new business department which advises the people as to their needs and what system best fits their purpose. This department follows up each installation and sees to it that it is properly installed and adjusted. The result has been that the people have found this agency's advice is good, and depend upon it to see that they are properly equipped. Quoting H. J. Kister, new business manager of the corporation: "Like every other gas company, we have experienced considerable trouble through the sale of cheap appliances and faulty installations. This we are doing our best to overcome and continually help the dealers to sell good appliances and insist that our instructions be followed on the installation.

"Prior to five years ago there was one gas furnace installed to four furnaces using other than gas for fuel, and by consistent work this condition has been reversed until to-day there are four gas furnaces installed to one furnace using other than gas as fuel."

Need of Appliance-Testing Department

Every gas company should have a test room where a complete scientific test of any gas heating appliance should be made. If the laboratory test shows high efficiency, then an installation should be made, free of cost or on trial if necessary, to obtain a practical test. Both checks on any system are necessary, for very often an appliance will show high efficiency in a laboratory, but, later, in a real installation, mechanical defects may be found which can be overcome before the system is offered to the public in general as being good.

Too often have salesmen and men higher up approved appliances, and often by letter, without a thorough test; and the results have been embarrassing. This forfeits the confidence of the people and you all know that one consumer dissatisfied with a heating system will give you publicity hard to overcome.

No letter approving any gas heating system should be written by anyone other than the executive head of that company, and if that is his peculiar field, few letters will be written and none except on proved facts that the company can back up.

To demonstrate the danger a little more clearly, let me cite an instance: A man handling a floor furnace had been trying repeatedly to obtain a letter from the head of a certain new business department. This was refused, since this particular unit would not prove up and also because this manager considered it poor policy to issue such letters. In his absence, however, the floor furnace man took the matter up with another official of the company and a letter was written praising the appliance. It was immediately used as an advertising medium and it was with some difficulty that the gas company had the letter withdrawn.

The Pacific Gas & Electric Company and The Portland Gas & Coke Company are installing at this time heating systems themselves and generally, I believe, it is the better system. I tried the dealers first and could arouse no enthusiasm, and finally started in with my own crew.

Our first installations were with Rector and where they proved good, the first year certain imperfections in some types of fans and motors came up, particularly in the pressed steel radiation. Also in one or two cases in which a plumber had made the installation, imperfect work was done. However, our next season we remedied all these defects at our own expense and the systems then worked perfectly. We thus gained the good will of the consumers using the systems and their good word has meant much in other sales.

In the San Joaquin Valley with a net gas rate of $1.10 per thousand, we can heat with the Rector System at lower cost than with any other type fuel. We have taken on a large garage and salesroom, a big cathedral, a prominent shoe store, where oil was replaced, and many residences, and every single one of these consumers is a booster and an advertising medium for us.

Installing Systems

As to installation of the Rector System:—It is absolutely necessary that the exhaust or suction pipe to the motor be galvanized pipe, of the proper size and properly graded without any traps, so that the condensa-

tion may be properly taken care of and be prevented from running into the fan. The exhaust from the fan should be of adequate size and carried above the roof. It has heretofore been a matter of guess work to a very great extent, as to the proper sized exhaust pipes to the various sized radiators, and as a result it was hard to get the same vacuum on all the radiators.

This, however, has been overcome through the work of William Henderson, assistant gas engineer of Pacific Service, who has issued a chart determined by a Spitzglass slide rule, wherewith the exact size piping can be obtained to get 2½ in. vacuum in every radiator. This has been checked with actual tests and is accurate.

The motor should always be set on a concrete foundation and in a part of the building where any noise from it will not annoy the occupants.

If installed with a thermostat, there is a material saving in gas consumption. The heater works most efficiently at 0.65 cu. ft. of gas per square foot of radiation installed. Care must be taken to keep excessive free air out of the system, as this only drops the efficiency. All doors and flappers, etc., should be properly seated and the burners kept clean. Where any heating system is installed, someone on the premises who is to look after the system should be properly instructed as to handling it, but always with the distinct idea in mind that when in doubt, call the gas company. It is a fatal error to permit anyone but a thoroughly experienced employee to adjust or regulate a heating system. Regular service should be given gratis on any heating system, for this not only keeps a satisfied consumer but makes him your sales agent.

Rapid Rate of Progress Attained

In our second season we started in on Hawks Radiators, following the pioneer work done by the San Jose district of our company, and installed 1,100 sections that season. We did not have a single section to remove and all were put in on a guarantee to make good or come out. At present Fresno has 3,000 sections of Hawks, all advertising mediums for this fall. We have replaced many oil installations.

In installing Hawks Radiators, the gas supply and vent have much to do with the successful operation of the heater. The additional cost of adequate sized pipes or flues is negligible when their increased carrying power is considered. Run full sized supply pipe to reach the heaters. Five cubic feet of 600 B.t.u. gas per section is the greatest that should be used on 38-in. radiation and 4½ cu. ft. is more efficient.

As to vents, practice has shown that iron or steel pipe scales to such an extent that it is not practical to use. Galvanized pipe is better but even this in time will scale. The best vent for Hawks heaters is a terra cotta or cement tile. The vents should always be clear of the roof and a cap put on. One other important matter is to so place the drip that it will always clear itself.

The time has passed for anyone in the gas business to fear the outcome of gas heating. Every new business department should watch the building inspectors' department daily and when a permit is let for any structure, look up the architect, contractor and owner and stay with it till you land the order. Let them all know that the gas company stands back of its heating systems with a guarantee.

The Apartment House Field

The best friend you should have is the architect, for people look to him for advice in everything going into the home. Don't forget that in most instances they call for bids on heating and do not figure radiation themselves. Just drop in their office at times and see what they have in prospect and tell them what you are doing with gas heating. They may have a prospective plan, and if you can figure right then what they need and approximate cost, it has great weight in their final judgment. I have picked up many a system by this method and now have two architects specifying gas heating systems. Often you will get calls from an architect before any contractor or plumber gets a chance at the job, providing you have gained his confidence by results obtained.

THIS SCHOOL AT SAN JOSE IS HEATED BY GAS

One big field open for gas heating is in apartment houses. It is seldom that any two people require the same amount of heat and as a result the apartment house owner has constantly to meet the complaint "too hot" or "too cold" and he would like to obviate this trouble. I have now my second apartment house heated with gas. Each apartment has twenty sections of Hawks radiation with a separate house line and meter on each apartment, and it might not be out of place to add that each has a 2½-gal. automatic water heater and cabinet range. The results are perfect, for each tenant can be as hot or cold as he likes, as he furnishes his own heat. This complete installation was put in at a cost slightly above the price in the original bid for a flue for a steam installation.

The writer spent three days in Los Angeles and vicinity to see what had been done in gas heating, and thanks to Messrs. Kister, Roberts and Haugh, he covered a great deal of territory and inspected many systems. The Stephens and Peerless automatically-controlled gas-fired steam boilers have given excellent results and many fine installations have been made. In certain apartment houses, each apartment is heated with an individual steam boiler, each on its own house

(*Continued on page* 334)

AMERICAN
GAS ENGINEERING JOURNAL

FIFTY-NINTH YEAR

Published Weekly by
AMERICAN GAS LIGHT JOURNAL, INC.
42 Pine Street, New York, N. Y.

ELBERT P. CALLENDER, President
STANTON G. KRAKE, Vice-President
FREDERICK A. SOUTHWORTH, Secy.-Treas.
EUGENE C. MILES, Editor

WESTERN MANAGER
E. B. FRITZ

CHICAGO OFFICE
537 So. Dearborn St.

Subscription $3.00 per year, including postage in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines.
In Canada, $4.00. Foreign, $5.00.
Single Copies, 10 Cents.

Entered at the Post Office, New York City, as Second Class Matter.

CONTENTS

TIME NEAR AT HAND WHEN PRACTICALLY ALL OF THE COUNTRY'S COFFEE WILL BE GAS ROASTED. BY H. E. DANNER 321

SYSTEMATIC SALESMANSHIP 324

HOW THE GAS COMPANIES ARE HELPING THE NATION 328

FOUR GAS-FIRED FURNACES FOR HOUSE HEATING INSTALLED FOR EVERY FURNACE USING OTHER FUEL IN LOS ANGELES 329

EDITORIALS 332

NEWS OF THE GAS INDUSTRY 337

PERSONAL NOTES 343

SOCIETIES AND ASSOCIATIONS 343

CONSTRUCTION NOTES 343

FINANCIAL NOTES WILL BE FOUND ON PAGE 16 OF THE ADVERTISING SECTION.

Real Industrial Fuel Gas Salesmanship

Due to the disinterested co-operation of various gas men we have been able to publish in this journal various articles in which we have felt a particular pride. We cannot recollect any article, however, that has given us greater satisfaction than the leading article in this week's issue.

Here we have described step by step the various preliminaries gone through to secure an industrial gas installation that led to other installations until the company attained a 100 per cent efficiency in replacing other fuels by gas in an important industry in its city.

We find the gas company representatives gaining access to a large plant and winning the confidence of its management, advising with it as to improvements in its working methods even when using a fuel in which they had no material interest, making a thorough study of other gas installations throughout the country devoted to the same uses and even assisting the plant's management in locating a site for a projected new plant. This is industrial gas salesmanship in its highest sense.

No gas man interested in industrial fuel should fail to read the article carefully. It is a sincere narrative of an experience, described completely, yet concisely. The article contains a wealth of suggestions.

Systematic Salesmanship

If it had served no other purpose, the 1917 Convention of the Pacific Coast Gas Association would have justified its existence merely through having been the means of bringing forth what this journal considers one of the most valuable contributions to gas merchandising literature that has appeared in recent years. This is the paper on "Systematic Salesmanship" by G. P. Egleston. It is abstracted in this issue and should be read by every man who has attained or aspires to a high place in the industry. It conveys many lessons and suggestions to the commercial man, but more to the executive higher up.

Mr. Egleston brings out an extremely important point in reference to sales efforts during periods of depression. No one will refute the soundness of the argument that it is during such periods that we should concentrate our greatest efforts on the hardest points to make a showing. Sales made on existing lines reduce overhead and assist in overcoming high costs of materials. Yet what company, in practice, does not go contrary to this reasoning?

All through the discussion, the age-old and generally accepted, but seldom practiced, definition as to the attitude of the gas company towards appliance sales, is kept before the attention and strongly emphasized. Considered in the abstract we know that the gas company is interested mainly in the gas the appliance burns, and not in the appliance itself. This is merely a means to an end. Yet the point cannot be over-emphasized.

We still determine the value of our commercial managers by the number of appliances they dispose of, well knowing in the inner recesses of our minds that many of them will be neglected and, after a period, fall into disuse, thus failing to discharge the very duty for which the company sold them to perform—that of burning gas. Some day we are going to look upon our commercial managers as load developers rather than as appliance vendors. When that day comes the commercial end of the gas industry is going to be in a very healthy state.

He is somewhat doubtful as to the advantages of radical changes in gas company methods to secure the co-operation of plumbers and dealers as a means of increasing the sale of gas-using appliances. Mr. Egleston makes it clear that he favors the gas company attending to such sales, reiterating that the company is selling a service, not an appliance. If the latter is not used, the fact that it has been sold is of no advantage to the company. The dealer is interested only in the profits of the installation and sale and ends at the very point the gas company's interest begins.

Until we arrive at a means by which we can be assured that the plumber or dealer will become interested in the gas company's welfare to the extent that he will really push sales of gas-using appliances and everything possible will be done to assure that they will be actually and continuously used for the intended purpose—a condition we have not attained as yet—this journal must agree with Mr. Egleston. The sale of appliances is primarily the business of the gas company. If it can carry on its sales work in such manner as not to interfere with the sales of plumbers and dealers, yet not sacrificing in the least iota its own interests—a condition, speaking from the gas-using standpoint, difficult to attain—well and good. Let it do so. But, if to secure the friendship and co-operation of plumbers and dealers, it must sacrifice its own interests in not furnishing an equally efficient service, it is better that it handle the appliance end itself, even to the point of actually excluding the dealers. The good will of thousands of consumers and the good repute of gas, is of more value to the company than the sales enthusiasm of all the plumbers and dealers in its territory.

Familiarizing the Public with the Industry's Problems

The Cedar Rapids (Iowa) Gas Company, we are told, holds an open door to visitors to its plant. It does not welcome them there unannounced in intermittent hordes, but through arrangements previously made at the office. This is but a detail however. The welcome is there. The method of procedure is but a sensible precaution to prevent interference with the work in hand.

Opening the gas plant to the public would in many cases be absolutely impractical. In other situations, however, it is entirely practical, and the procedure could be followed without hampering to a degree worthy of consideration the work of the plant.

The scheme of popularizing a product by educating the public into the details and conditions of production has been tried out with gratifying success in other industries. The attitude of the Cedar Rapids company may have in it a suggestion worthy of adoption by other companies.

The Second Liberty Loan

Another opportunity is offered to the American people to materially assist the Nation and to make a good investment. The second Liberty Loan is set at $3,000,000,000 and bears interest at 4 per cent.

A U. S. Government bond, as is generally known, is the safest investment in the world. It has all the advantages of so many dollars in the hand, as a means of tiding one over a rainy day, and as a provision against some day having to raise a certain sum of money in an emergency, with the advantage that until actually converted into cash it pays interest. The Liberty Bond issue provides an especially convenient means of laying aside so much money every month; in fact it is preferable that it be purchased in this manner, on easy terms out of current savings.

As a matter of business and provision for the future, the salaried man who wants something to fall back upon should his salary for any reason cease, could not act more wisely than by buying Liberty Bonds on the partial-payment plan. Thus, having acted entirely from motives of direct self-interest, he could have the additional satisfaction of knowing that he is assisting in insuring the continuance of opportunities and a mode of life such as he has had the advantage of for his children, that he is hastening the end of the present era of wholesale slaughter of human beings, and, in common with countless others, bringing home to the enemy powers the fact that the United States is into the disagreeable task that has been imposed upon it with its whole heart; a factor that will have very much to do with shortening the time it will require to accomplish it.

Simple Expedient to Repair Leak in Holder While in Use

Several years ago one of our gas holders sprung a leak between the two sheets on the side, caused by the rivets crystallizing and breaking. A permanent repair was made as follows, without putting the holder out of business, writes Claude H. Webber, manager of the Southwestern Gas Company, of Hemet, Cal., for the Wrinkles Department, D. J. Young, editor of the Pacific Coast Gas Association.

A piece of round iron, slightly smaller than the rivet

hole and 1½ in. long, was threaded down to center, at which point rod was bent at right angles. The plain end was inserted through the rivet hole, bringing it flush with inside of holder plates.

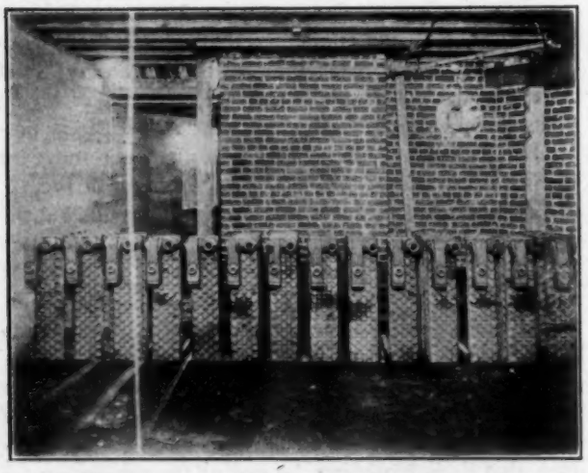
Candle wicking saturated with red lead was placed around threaded end, two washers applied and nut screwed tight. An effective joint was made, which extended about 2 ft., screw-rivets being inserted in each rivet hole.

Four Gas-Fired Furnaces for House Heating Installed for Every Furnace Using Other Fuel in Los Angeles.

(*Continued from page* 331)

line and meter. The system works perfectly and the consumers are satisfied with cost of operation. Any good steam fitter can install the radiation and pipe work, but it is distinctly the gas man's office to watch the gas end of the installation.

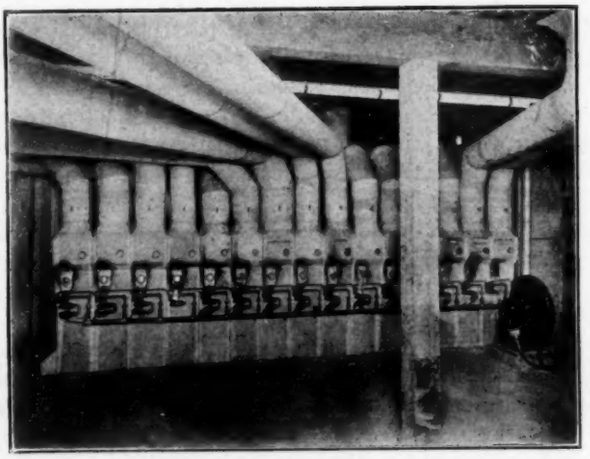
As a primary installation for people who want a hot air system, the Perfection Gas Furnace seems to meet with general approval. Costs of operation are reasonably low and the furnace being equipped with three burners, is easily controlled as to high or low temperatures. I am firmly convinced that where one has a 600 B.t.u. gas with a heating rate of 75 cents per thousand that he can compete on the Pacific Coast with solid fuels with a Perfection Furnace.



TYPE A GASCO INSTALLATION PARTIALLY COMPLETED

High School Installation

The finest gas heating system it has ever been my pleasure to inspect is in the Redondo, Cal., Technical High School. It is an indirect system. The installation consists of six No. 38 Peerless gas-fired and automatically-controlled boilers. The 10,000 cu. ft. of air per minute going into the Plenum room is washed through water. There are 3,200 ft. of Vento Coil in the Plenum room, the equivalent of 16,200 sq. ft. of radiation. Each room in the school is an independent unit and is automatically controlled by a damper in the ceiling of the Plenum room. The temperature maintained in the school rooms is 68 deg. and is raised from an average temperature of 52 deg. on the outside. Four pounds steam pressure is carried on the boilers.



TYPE A GASCO INSTALLATION COMPLETED

From	6:30 a. m.	to	8:00 a. m.	5	boilers	are used
"	8:30 a. m.	to	12:00 a. m.	3	"	" "
"	1:30 p. m.	to	4:00 p. m.	4	"	" "
"	6:00 p. m.	to	8:15 p. m.	3	"	" "

The B.t.u. value of the gas is 1,200 and the rate 75 cents per 1,000 cu. ft. The bills for five months were as follows:

October	$139.13
November	152.48
December	120.46
January	225.30
February	197.30

or an average of $166.93 per month. This system was put in under strict competition with the oil burner people and the gas figures are under the estimate on oil.

As to the Gasco Furnace, designed by E. L. Hall, engineer of the Portland Gas & Coke Company, I will quote from Mr. Hall's correspondence to me:

The Gasco System

"In order to satisfy the demand for a heating system without radiators in the rooms the Type A Gasco system was developed. The heating elements are units of 'Vento' sections placed in the basement, one unit generally for each room. All of the units are assembled into a furnace. The units consist of the necessary number of Vento sections with a Rector burner and burner box. The units connect to the vacuum line and fan, and operate on the principle of the Rector System. The air supply is brought under the units and after passing over the radiation is discharged through hot air ducts to the rooms either by gravity or fan, as the case may be. Each unit is automatically controlled by the register in the room it supplies, so that when register is closed vacuum in the burner is broken and gas supply stopped; when register is opened vacuum is made and gas is supplied. The operation is accomplished by electrical contacts on the register and magnetic valve on burner. Usually the burner is also controlled by thermostat in the room. Accompanying photos show clearly the construction of this furnace.

"The Type A Gasco system, while representing the highest development in gas heating is an expensive installation on account of the great number of thermo-

stats, magnetic valves, and burners required (one for each unit). The several Type A systems installed in Portland are being successfully operated.

"The Type B Gasco furnace is a successful outgrowth of an attempt to reduce the cost of the Type A Gasco. The 'Vento' sections are massed into one unit and are supplied by two or three large burners, instead of many small ones. One thermostat (generally placed in the main hall, or living room) controls the furnaces through the vacuum fan. Hot air is distributed to the various rooms as in an ordinary furnace.

"Though, as positive temperature control is not obtained as with the Type A Gasco, fairly even temperature is maintained in the different parts of the house, if the hot air ducts are properly laid out. The furnace may be enclosed in either brick or sheet iron asbestos lagged casing. The Type B Gasco furnace has met with a great deal of favor.

"In order to still further reduce the cost of the gas furnace the 'Gasco Jr.' was built. Combustion takes place in a sheet iron burner box in the middle of the furnace. The products of combustion rise to the top of the burner box, pass into the 'Vento' section on each side, and are finally exhausted from the bottom of the sections into a manifold and then into the chimney. Circulation being by gravity the problem was to have sufficient surface to take up the heat and at the same time have a low resistance to the passage of the gases. This furnace is 90 per cent efficient. A thermostat placed in the room that is most used controls the gas through a magnetic valve. Distribution of the hot air from the furnace is made in the same manner as in the Type B.

"Companies entering the heating field will avoid much grief by having their salesmen backed up with engineering service covering the construction and operation of the various systems."

Gas Company Service

Most any gas heater will give out heat units, but selling a consumer a gas heater that will give him the greatest possible number of these units—that is where the gas company's service comes in. Just as it does in maintaining these heaters in first-class condition after they have been installed, for unless a gas heating system is properly and regularly inspected, we will not get far.

The object to be accomplished in heating is not to furnish heat for the bodies of the occupants of the room, but to provide conditions under which the body will not lose heat rapidly. The body itself generates all the heat required to maintain itself at a comfortable temperature under favorable conditions, and hence, the more nearly the air approaches the temperature of the body the less loss of heat will occur by conduction. With the heat at 70 deg. Fahr. the body produces heat enough to supply the loss without discomfort, and this is the temperature usually regarded as desirable in residences. The advantages in gas heating consist of absolute cleanliness in the house and atmosphere, a uniform and even temperature, automatic control, heat in any quantity and at any temperature—freedom from the servant problem.

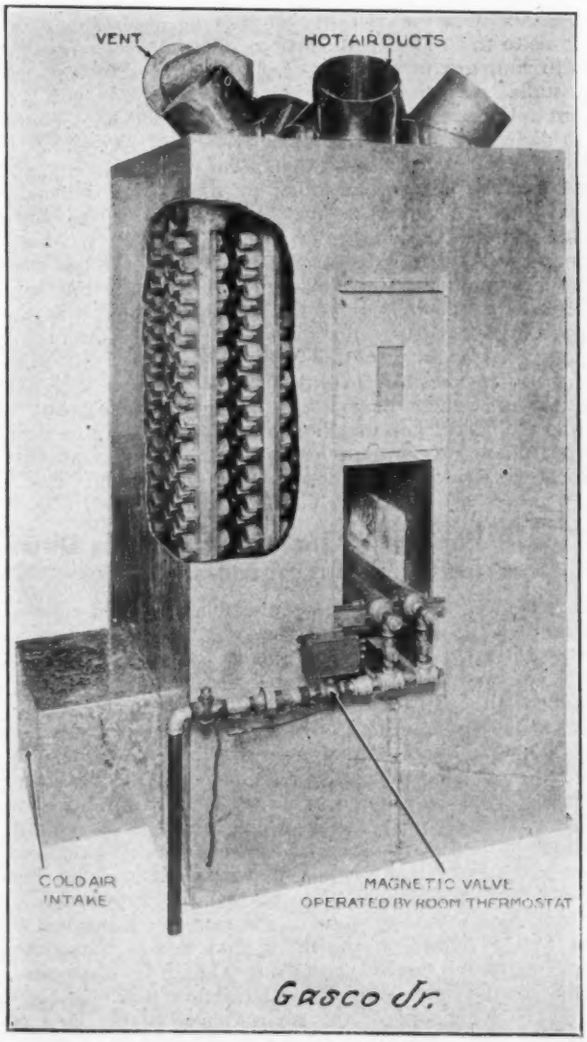
There are three points for emphasis in the matter of heating with gas, whatever the system you choose; namely, convenience, cleanliness and hygiene, and economy.

As to Convenience: Gaseous fuel is in a class by itself. It is always ready for duty at the touch of a match, or if equipped with a pilot light, even the match is eliminated and control being either automatic or at the most, involving the turning of a stop cock.

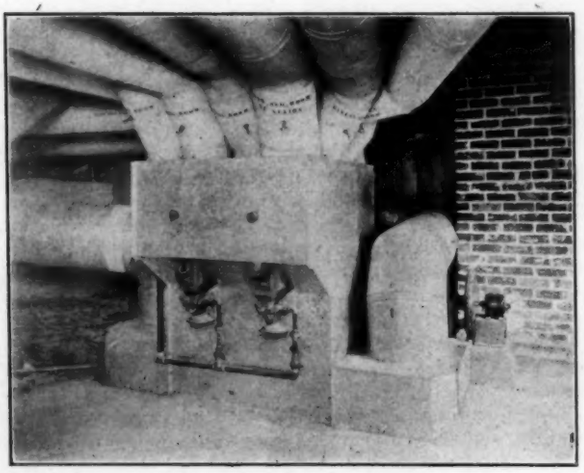
Cleanliness and Hygiene: From the standpoint of both personal cleanliness and hygiene, the use of solid fuel is deplored. Dust and ashes are distributed over the house, room furnishings rapidly become grimy and the air is generally contaminated with dust. The resulting condition is highly inimical to personal comfort, health or cleanliness. The lack of ventilation effects stuffiness and air stagnation in the room. Then, gas is not subject to interruption of supply from weather conditions, transportation, and innumerable conditions governing the supply of solid fuel.

Economy: Gas-fired heating systems are highly efficient, whereas solid-fuel-fired systems are quite the reverse. The price of gas is regulated everywhere by a state commission, whereas solid fuel prices vary constantly with car shortage, manipulation and otherwise.

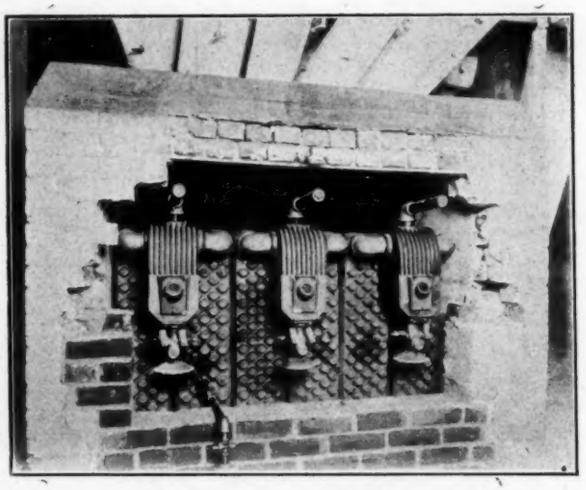
In closing let me tell you that the one thing in which all gas companies need team work and co-operation is the heating business—to see that every single system installed is properly installed and is what the consumer



OBJECT OF JUNIOR TYPE GASCO SYSTEM IS TO LESSEN COST OF INSTALLATION



A TYPE B GASCO INSTALLATION



COAL FURNACE REMOVED AND TYPE B GASCO SYSTEM PLACED IN OLD CASING

should have. Don't forget that your inattention to this may cause some other gas man to lose a valuable piece of business. People are moving or visiting from town to town and from state to state, and let one come into your territory who has been prejudiced by a poorly installed or inefficient gas-heating system, and you will not only have your troubles curing him, but he is bound to damage you with the publicity he will spread. It is also very often the case that a consumer has engaged an architect from some other town and this is usually the case in smaller towns. This architect may have had experience with some poorly installed gas-heating systems that did not give results and the gas man in the small town either loses the job or is put to a high expense to convince the architect that it was the poor installation and not the system that was at fault.

A good example of this is in a new Overland Sales Agency in Fresno. It was easy to sell them an 8-gal. automatic water heater and other appliances, but it was a physical impossibility to talk gas heating to them on account of the experience they had had in another location with a poorly installed Rector System.

Tissue Paper in Gas Mantle Holds Down Purchases of Unnecessary Arcs

Some years ago we adopted a policy of free maintenance on gas arcs. At that time our prices for installation piping were very low, and as we loaned lights to the consumers, a great many Orientals had lamps installed, although they were already using electric lights. It took us some time to discover that in many cases our lamps were simply being used as break-down service, for the electric company's lights do go out occasionally, writes Frank Q. Cannon, manager of the Honolulu Gas Company, for the Wrinkles Department, D. J. Young, editor of the Pacific Coast Gas Association. We realized we had a great many lamps that were not working, but the consumers claimed they burned the lights nightly. Many such installations had a gas range or water heater as well as lights on the meter and it was impossible for us to tell, unless we made a nightly inspection, whether the lights were being burned or not.

C. E. King, one of our men, conceived the idea of having our lamp cleaners put a small disc of tissue paper in the mantle of each lamp when he cleaned it, and on his next weekly inspection if the tissue paper was still there it was proof conclusive that the lamp had not been burned.

This was a much cheaper and more satisfactory method of checking up on these lamps than a nightly inspection, for our inspectors were known to many of the consumers and if they saw them coming they would immediately turn the lights on, burning them for a few minutes. By this means we were able to save a considerable sum on the purchase of new lamps.

Measure Heat as Easily as Milk

Isn't that a slogan that would attract any housewife? It was only one of the catchy signs used in the attractive display of gas ranges by the Star Hardware Company, Toledo, Ohio. Their large window was floored with billows of pink cheesecloth, and the back, sides and ceiling were covered with masses of crinkled pink crepe paper. At the four corners were set tall palms in brass jardinieres. In the rear was a large gas range, with nickel trimmings and in front of it a small two-burner gas stove, while at either side were portable gas heaters. The gas range had a thermostat attachment and a card above it advised:

DON'T REGULATE YOUR OVEN BY GUESSWORK.
MEASURE THE PROPER HEAT WITH THE THERMOSTAT.
as easily as you measure water or milk in a tin cup

Different recipes call for a wide range of oven temperature, as the list below shows. Why guess, when by a turn of the thermostat wheel you can be sure of perfect baking without waste of gas or spoiling the meal—bread, large loaf; pies, without top crust; bread, small loaf; biscuits; searing temperature for roasts?

By the side of one of the heaters was a card: "For these cool evenings—use a Perfection radiator," and by the smaller one, "The Perfection radiator is driving the chill from more than two million homes—inexpensive, odorless, clean—it makes your home cheery." By the small two-burner stove was a sign: "Just the thing for light housekeeping. Takes little room, and insures an appetizing meal."

News of the Gas Industry

Next Pacific Coast Gas Association Meeting to Be Held in Los Angeles, Cal.

John D. Kuster Elected President for the Ensuing Year — Association Holds Most Successful Convention in History

With 86 new members enrolled, making a total membership of 508, the Pacific Coast Gas Association Convention, held at Santa Cruz, Sept. 18-21, was stamped as the most successful in the association's history.

The papers presented were of an unusual value and pertinence; several of them approaching the mark termed "notable."

The following officers were elected for the ensuing year: President, John D. Kuster, of the Pacific Gas & Electric Company, San Jose; vice-president, A. B. Day, of the Los Angeles Gas & Electric Corporation, Los Angeles; secretary and treasurer, Henry Bostwick, of the Pacific Gas & Electric Company, San Francisco. The following directors were also elected: John A. Britton, of the Pacific Gas & Electric Company, San Francisco; George P. Egleston, of the Coast Counties Gas & Electric Company, San Francisco; B. S. Pederson, of George M. Clark & Company Division, San Francisco; D. J. Young, of the San Diego Consolidated Gas & Electric Company, San Diego; Samuel C. Bratton, of the Portland Gas & Coke Company, Portland; F. S. Wade, of the Southern Counties Gas Company, Los Angeles; and Leon B. Jones, of the Pacific Gas & Electric Company, San Francisco.

The next convention will be held at Los Angeles, Cal., in September, 1918.

Palo Alto, Cal., Gas Works Becomes Municipal Plant

The city of Palo Alto has taken over the Palo Alto Gas Company plant, which will hereafter be conducted as a municipal institution. Superior Judge Welch gave the order of transfer, to take effect immediately. The city paid $65,000 for the plant, and it is expected that a reduction in the price of gas will soon be made in Palo Alto.

All Gas Companies Now Free to Extract Toluol — Government Will Assume Any Financial Risks

Charles O. Herty Makes Statement Public at New York Commission Heat Unit Hearing. Captain O. S. Fogg and Robert ffrench Pierce Chief Witnesses on Stand

One of the vital questions before most of the gas companies of the country was answered by Charles O. Herty, editor of the *Journal of Industrial and Engineering Chemistry*, at the last hearing on the change to the heat unit standard before the Public Service Commission, First District of New York. The War Department of the Government is prepared to assume all financial risks gas companies may make by installing apparatus for extracting toluol and other explosive ingredients. The gas companies stand to lose nothing in the investment if an unforeseen closing of the war should stop demand for by-products, according to the statements made by Mr. Herty and authorized by General Crozier, Washington, D. C.

The hearing of the case on the change from the candlepower to the heat unit standard in New York City was continued Oct. 9 by the First District Public Service Commission, the chief witness in the morning session being Oscar S. Fogg who, up to one week ago, was the Engineer of Utilization at the New York Consolidated Gas Company, but who is now a captain in the U. S. R., stationed temporarily at Washington, D. C. In answer to the questions of Counsel Garver, attorney for the gas companies, Captain Fogg explained that he had designed and tested the gas range which is in use by the New York Consolidated Gas Company. From numerous tests made on these ranges, he was led to believe that by using a gas of 585 B.t.u. at the uniform pressure at which such a gas could be supplied, and as compared with the results obtained at 660 B.t.u., that it is possible to obtain 67 per cent thermal efficiency in the utilization. This is considered high efficiency, as many of the gases now supplied in many parts of the country are only giving from as low as 35 to 58 per cent thermal efficiency at the burners of the modern ranges.

After considerable discussion around Captain Fogg's testimony and test results, he was dismissed, and Oscar Straus, chairman, gave Charles O. Herty the stand. Mr. Herty, who is editor of the *Journal of Industrial & Engineering Chemistry*, and who was previously professor of chemistry at the University of Georgia and the University of North Carolina, explained that he wanted to bring out two points which might help to hasten the decision before the commission. He had recently been in a conference with General Crozier at Washington, D. C., and had obtained his permission to make known to the American people and the gas companies the results of his conference.

The first point Mr. Herty brought out was the absolute dependence of our army and navy, and to a considerable extent the British army, on the production of trinitrotoluol or TNT in the United States. To properly supply 1,000,000 men with this explosive, it will require 300,000,000 lb. by September, 1918. If every gas company in the United States, he continued, were to produce its limit of toluol, there would be considerably less than this amount obtained. Of course, the steel company coke ovens can be depended on for a large quantity, but Mr. Herty reminded those at the hearing that this was for only 1,000,000 men, whereas there are already more than that number enlisted in the army.

The second point he brought out is perhaps of more direct interest to many companies who are figuring on what they should do with their apparatus and equipment after the war is over. He stated that the War Department of this Govern-

ment is prepared to assume any financial risks the companies might encounter in the installation of the equipment; that is, no company is expected to stand any financial loss by its investment should the demand for the by-products be suddenely cut off, due to any unforeseen occurrence, such as the termination of the war.

It was the expressed opinion of all the gas companies represented that they were ready to lend their heartiest co-operation to the Government under any conditions.

In the afternoon session, Col. Dykman, of the Brooklyn Union Gas Company, did considerable to speed up the hearing. He said:

"The Brooklyn Union Company has considered the request of the Chairman made some meetings ago. We have been impressed by statements made on behalf of General Crozier, and by General Crozier, and by the statements made on the stand this morning by the man who comes from General Crozier.

"We are ready to take the toluol out of gas and deliver it to the Government, and to begin at once or as quickly as may be under contract with the Government. That will necessitate a change of standard to the B.t.u. standard, and if this Commission shall approve of it, leaving the price of gas where it is, making a B.t.u. standard, we will make, immediately, a contract with the Government and go ahead and furnish to the Government this toluol. There are details to be settled by the company and with the Government."

When asked by Commissioner Hervey whether, if there is any reduced cost in the production of the gas on this proposition, the company would rebate that cost to the consumer, Mr. Dykman replied that the consumer would suffer nothing from the change, and that the Government would be the great gainer; also that the gas company would not be the gainer at all.

Again pressing the matter of a prompt decision, Mr. Dykman said:

"The great object of this, Mr. Commissioner, is this, that there shall be an instant stop to a hearing and to the taking of testimony, which if it proceeds, will take a long time, and we will meet instantly the demands of the Government for this toluol which the Government needs right away. At the very best the Government cannot get the toluol that it needs in some time after the conclusion of this proceeding, and there is not any time for us to discuss these questions which will be discussed at length if we proceed with this hearing. Our first and great object is to meet the demand of the Government."

Commissioner Straus then repeated the suggestion made at the last hearing, which may play an important part in the decision. It was as follows:

"That the option be permitted to the company to furnish at the present price either gas of 22 candle-power standard, or gas upon an alternative B.t.u. standard, which latter standard to be equal to the average B.t.u.'s now furnished to the company or based on some other figure to be determined by the commission on the facts herein. That any company after exercising such option to furnish gas on a B.t.u. standard may also exercise the option for a specified period to furnish a gas of less B.t.u's with reductions in price to the consumer in accordance with a table to be fixed by the Commission."

No Application for Change in Standard Made by Companies

Robert A. Carter, vice-president of the Consolidated Gas Company of New York, then brought out the fact that no application had been made on the part of these companies for a change in the standard of gas. His statement follows:

"Mr. Chairman, I would like to correct what seems to be an erroneous impression, perhaps to the minds of the Commission, certainly in the minds of others, that there has been any application or request on the part of these companies for a change in the standard prescribed for the gas to be furnished by these companies. That has not been their attitude at any time, as I am informed, and certainly I can speak authoritatively for the Consolidated Company. We want to echo and endorse all that Col. Dykman has said in regard to our desire to meet the demands of the Government for toluol for munition purposes. We are already doing a great deal of work for the Government, work which the Government has taken more than one occasion to express its extreme satisfaction with. We are informed and believe that the result of the substitution of a calorific standard corresponding with that adopted by the Second District in this State, will not result in any decided difference to the consumer. Our information in that regard we deem absolutely reliable. We are ready to believe upon the basis of information obtained from our experts and engineers that there may be a slight disadvantage to the company resulting from the installation of mantle lighting in lieu of 20 per cent of the business now done through open flame burners. One expert whom we have consulted has advised us that it may very possibly result in a diminution of some 16 per cent of the volume of our sales, but assuming it amounted to only a diminution of 10 per cent, the effect upon our distributing cost would be substantially greater than any economy which could possibly be computed in the manufacturing cost due to the use of a smaller quantity of oil in the production of the calorific standard in lieu of the candle-power standard.

Our position is this, I should say, Mr. Chairman, in reply to your question, that if the 585 British thermal unit standard is prescribed and it is subsequently found that under that standard the Consolidated or its affiliated companies are able to earn anything more or that the price yields anything more than the actual cost of gas, including interest upon the investment in the property necessary to produce and distribute it, that any profit over that the company would, I am inclined to think, and I should expect to be sustained in that, I say it without authority, but I should expect to be sustained in it, would divide such a profit, if any there were. But I will say this, that I have had computations made indicating that in order that the company at the 80 cent rate could earn the cost of gas computed as I have stated and including a mere interest rate upon the investment in the property, the standard would have to be fixed at about 400 B.t.u. I do not presume for a moment the Commission contemplates prescribing that. The company has uniformly sought to improve the quality of its service, as Captain Fogg testified, at a considerable expense: It has sought most efficient appliances, and the most efficient adjustment of appliances in order that the consumer might receive for the amount that he paid the very best possible service. We have engaged in two campaigns for the introduction of incandescent mantles in lieu of open flame burners, installing in those two campaigns over 200,000 of those lights, at an average sacri-

(*Continued on page* 342)

Selling Consumer by National Advertising—Dealer by Direct-Mail Method

Among the various ways in which the Ruud Manufacturing Company of Pittsburgh, Pa., is strengthening the value it gains through national advertising, is the distribution of a folder, entitled *Advance News*, of the Ruud Automatic Gas Water Heater Fall Advertising.

On this good-sized sheet, which is printed in orange and black, a description of the advertising appears in connection with two reproductions as they will appear in the *Saturday Evening Post* and the *Literary Digest* this Fall.

A particular appeal is made to gas companies in the sales of their water heater by special work in showrooms, display windows, and by means of having their inside and outside salesmen throw their weight behind the Ruud national advertising in order to pick the profit from it.

FIG. 1. SHOW ROOM OF THE GREENFIELD, MASS., GAS LIGHT COMPANY.

Middlebourne (W.Va.) Company Asks Increase in Rates

Asking permission to increase domestic and commercial rates, the Middlebourne (W. Va.) Gas Company recently filed an application with the Public Service Commission. The company asks to be allowed to increase domestic rates from 20 cents to 30 cents each thousand cubic feet and to increase commercial rates from 19, 13, and 10 cents to 29, 21, and 17 cents each thousand cubic feet.

Simplifying Gas Company Show-Room Lights as a Method of Selling to Town Merchants

Lighting Standardized at the Display Rooms of the Gas Companies at Greenfield, Mass., Knoxville, Tenn., and Manchester, N. H. — Results Obtained

The gorgeous splendor of some of the gas lighting fixtures that one sees displayed in many gas company show-rooms are out of reach of many of the small-town merchants. They wander into the company's office now and then to pay a bill and gaze at the display much as one gazes at a beautiful piece of art in the museum—"Something to look at, but not to touch—all right for some people, but not for me."

But not all companies come within this category. Many are breaking away from such practices, and using various other methods of displaying their fixtures. Some of these companies have recently been brought to the attention of this journal, and their offices are shown in the accompanying photographs. The managements, in these cases, decided that they would not be giving their lighting salesmen the proper co-operation unless they made their own show-room lighting similar to that which the town merchants could use. The salesman has only to say to his prospect, "Drop in at our showroom to-night, and you will see how your store will look when well lighted."

FIG. 4. GAS COMPANY LIGHTING AT MANCHESTER, N. H.

In one of these towns, that of Greenfield, Mass., the Greenfield Gas Light Company standardized their offices by selecting the Welsbach "Cone" fixtures, No. 1682. These lights are installed in two rows, 7 ft. 6 in. apart, and 10 ft. between the lights, lengthwise of the store. F. C. Butler, manager of the Greenfield company, takes particular pride in this lighting installation, and has received many compliments from visiting gas men.

Fig. 2 shows a similar installation of these lights in the gas company's show-room at Knoxville, Tenn. The simplicity of the arrangement, and the quality of the lighting effect readily attracts the attention of any prospect.

The restaurant installation shown in Fig. 3 is real evidence as to the results obtained by displaying types of lights on which the greatest sales are made. In this restaurant electric lights were previously used on the side walls, and the fixtures may be seen still. The gas company's salesmen found it comparatively easy to sell this installation by asking the customer to compare the

FIG. 2. SHOWING STANDARDIZED FIXTURES OF A TYPE TO INTEREST MERCHANTS AT KNOXVILLE, TENN.

FIG. 3. RESTAURANT INSTALLATION SOLD ENTIRELY THROUGH GAS COMPANY'S EQUIPPING WITH NON-EXTRAVAGANT LIGHTS.

lighting effects in his dining hall with those of the gas company show-rooms.

Fig. 4 and 5 show views taken in the display room of the Peoples' Gas Light Company of Manchester, N. H. While many types of lights are shown, this company depends upon a more simple light for its

FIG. 5. ANOTHER VIEW AT MANCHESTER, N. H.

standard of show-room illumination. These are also the Welsbach 1682 " Cone " fixtures, which do most of the heavy duty lighting for the show-room. When a particular customer who desires to be shown a far more expensive light comes in, the others are lighted for his individual benefit.

Columbus Company to Bring Suit Before United States Supreme Court

Following refusal of the Ohio Supreme Court to rehear the case of Columbus against the Federal Gas Company, Columbus, Ohio, decided in favor of the city in July, attorneys for the company expect to appeal it to the United States Supreme Court.

Calumet (Mich.) Gas Company Now Under New Management

Legal details connected with the closing up of the affairs of the Calumet (Mich.) Gas Company, and its transfer to the purchasers, Fred K. Guck and associates under the terms approved by the stockholders at their recent special meeting, were disposed of and the transfer actually made. While no announcement has been made it is understood the purchasers have in mind a new organization to take over the affairs of the company, details of which likely will be announced soon.

In the meantime the new owners will continue the operation of the plant on the same basis as in the past and likely will engage a practical gas man to take charge of the enterprise.

New supplies of gas coal, the best obtainable, already have been received and it is claimed there has been an improvement in the quality of the service.

Red Wing Company Restrained from Increasing Rates

An order has been issued by the District Court restraining the Wisconsin-Minnesota Light & Power Company, Red Wing, Minn., from carrying a 10 per cent gas rate increase into effect. The case is to be argued at the October term of court. Under charter provisions and franchise terms the company cannot make rates in excess of charges for gas in other municipalities in the Northwest the size of Red Wing.

Providence Company Appeals to Court to Overrule Commission's Decision

The Providence (R. I.) Gas Company has carried to the Supreme Court of the Commonwealth an appeal from the order of the Public Utilities Commission suspending increases in its rates to consumers which the company proposed to place into effect Oct. 1.

The gas company asks the court to reverse the order of the commission, claiming that the order contravenes the state and federal constitutions. Citation is asked to issue to the Public Utilities Commission and the cities of Providence and Cranston and the towns of Johnston, Smithfield, Warwick and East Providence.

Although the counsel for the company contended that the new schedule constituted the legal rates for the sale of gas as of Oct. 1, the utilities commission issued its order at 2 p. m. on that date, in which it was stated, " The commission is satisfied that sufficient facts have been established to raise a question as to the reasonableness of the rates contained in a schedule filed by the Providence Gas Company with the commission to become effective on the first day of October." The commission ordered further investigation, and also ordered the old rates to remain effective pending inquiry.

It is contended that the order of the Public Utilities Commission " is unlawful and unreasonable in that it was entered without said Providence Gas Company being given any opportunity to be heard in the premises."

Application for 20-cent Rat Cut to 15 cents by Oklahoma Commission

The State Corporation Commission recently denied an application of the Consumers' Gas Company, Bartlesville, Okla., for a 20-cent rate for gas furnished the Vinita Gas Company, the distributing company at Vinita, Okla., and fixed the rate at 15 cents.

The Consumers' Gas Company is allied with the Quapaw Gas Company, which in turn is controlled by the Henry L. Doherty interests. A number of northeast Oklahoma towns, among them Miami, Blue Jacket, Wann and Welch, are served by the Consumers' company and the commission's action is indicative of the price basis for all.

EXHIBITS MADE BY THE CONSUMERS GAS COMPANY OF TORONTO, CANADA

Interesting the Householder in Gas

Gas Exhibits at Canadian National Exposition Might Well be Used as Show Window Displays

In order to interest people in gas it is necessary to show them what it will do, and one of the most logical ways of accomplishing this is to give practical demonstrations in gas company show windows, or if these are not large enough, in the interior of the store. Such displays get the people to talking, and everyone knows that "talking it over" in

KITCHEN DISPLAY PARTICULARLY INTERESTED WOMEN

any household generally presages a purchase in the near future.

A striking example of bringing home to the housewife the advantages of gas as a fuel for both cooking and heating purposes was the display of the Consumers Gas Company, Toronto, Canada, at the Canadian National Exposition held recently in Toronto. Their exhibit, or any part of it, with a few necessary modifications could be used by any dealer in his store or show windows.

The first booth was fitted up as a living room, very simply furnished. A soft rug covered the floor, pictures adorned the wall, and a writing desk stood in one corner. In the background was a big tiled mantel, and in the grate were gas logs. Two chairs were drawn up at either side of the hearth, and in front of them were two pairs of slippers. A large card on an easel in the front of the exhibit advised:

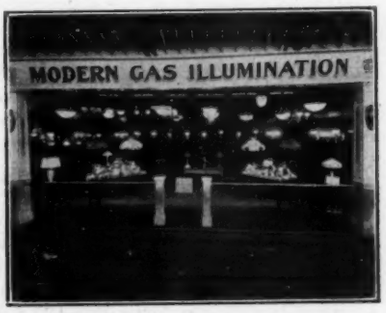
War Economy

The use of gas in the home is economy—Burning raw coal is a waste because valuable products are thus lost. You are invited to help the country in this war crisis by using gas instead of coal.

Smaller cards tacked to the wall suggested: "Heat when you want it, for just as long as you want it," "No dirt; no ashes; no dust; no smell—just HEAT," "Keep Father at home—use a radiant fire," "Keep the Home Fires burning—use a radiant fire," "WINTER WARMTH—The chilly autumn mornings and evenings are here, winter cold will soon follow and warmth will be needed. Use gas in preference to burning raw coal, because it helps to keep the atmosphere purer, and does not waste valuable products."

CANNING AND PRESERVING BOOTH AT EXPOSITION

The display that probably interested the housewife most of all was the canning and preserving booth, showing the advantages of the gas range in this process. The walls were covered with sanitas cloth and tiled linoleum was spread on the floor. On the wall were several attractive gas posters, and in the middle background was a gas range, upon which were cans of fruit and



MANY DISPLAYS AT THE CANADIAN NATIONAL EXPOSITION MIGHT BE USED AS WINDOW SUGGESTIONS

vegetables. A large gilt arrow, suspended from the ceiling, and pointing to the burners, was lettered in black, "To Food Conservation." A long table at one side held boxes and baskets of fresh fruit and vegetables, a long canvas sign being tacked to it: "Eat what you can, and can what you can't eat." The other table showed cans, jars and glasses of fruit, vegetables, preserves, pickles and jellies, with the sign, "Use gas and can all you can." Above the range was another large canvas sign: "Bear in mind that when coal is used at least one-half of the heat units are wasted. Cut out the waste—can with gas."

All Gas Companies Free to Extract Toluol

(*Continued from page* 338)

fice to us of output every time the mantle burner was substituted for a flat flame burner, and we resent the imputation that we are before the Commission seeking a reduction in the standard that will impose an additional burden upon the consumer and give him a poorer service for the price he is paying.

COMMISSIONER HERVEY: There is not any such imputation, that I know of, Mr. Carter. The suggestion is that if the company can produce its product more cheaply that it give it to the consumer more cheaply. That is the only question.

MR. CARTER: My answer to that, I think, is very plain, and if after this standard is established at 585 B.t.u., or a standard approximating that, it is found that the rate, the maximum rate produces the actual cost of gas, including a mere nominal rate of interest upon the investment, we would be glad to divide the profits.

The discussion then verged on to the question of whether it would be necessary to appeal to the Supreme Court, if just and reasonable rates could not be secured from the state authorities.

Mr. Maltbie made the statement that the city opposes this change to thermal units unless there is a reduction in the price, and he went on to say:

There is a new factor which has been suggested, and I was called out and I did not hear the testimony of the gentleman who appeared here regarding the toluol, and I felt the suggestion which was made was for the purpose of allowing the company to meet the demands of the United States Government temporarily, at least, in the making of toluol, and that the change would be made, and as I understand your proposition, it is this, that if that is done that the equities between the consumer and the company be left to be determined by the Commission and that the change be made now immediately so that they can begin making larger quantities of toluol.

CHAIRMAN STRAUS: That is correct.

MR. MALTBIE: And that the adjustment would be made by the Commission after hearing the evidence, and it would be made retroactive to the change in the standard.

W. R. Addicks then backed up the statements made by Mr. Carter, and after considerable discussion Chairman Straus said:

I think the whole thing might be clarified if this thing was taken into consideration in this proceeding of granting the right, giving the option to the company to go upon the thermal unit basis: The Commission must have regard for the interests of the consumer as well, and the Commission must see to it that the consumer is not prejudiced. There is testimony before us that if the thermal unit was reduced in order to get the same results a larger number of feet of gas will have to be consumed. Whether that is correct or not I do not assume to say, but there is such testimony from experts before us in this proceeding. Now we do not ask or we do not expect that the companies should lose anything by going to this heat standard. All we ask in the proposition that has been submitted here is that if there is a saving to the company in going upon a fixed standard of thermal units, that that saving be shared with the consumer if there be any. Now there are several questions that have been raised, if I state them clearly.

One is that the companies cannot consent to that because it may prejudice their legal rights.

The second is that the companies will not make any saving.

The third is that the consumer may get less.

MR. GARVER: And he may get more.

CHAIRMAN STRAUS: And you claim that he may get more.

MR. GARVER: That is a very important element, do you not think?

Robert ffrench Pierce, manager of the Illuminating Engineering Laboratories of the Welsbach Company at Gloucester, N. J., was called to the witness stand. His six years' experience in research work, and designing and testing mantles, as well as his exhaustive experience in testing of gas used in hardening mantles at the Welsbach Company, made it possible for him to present to the commission many results of tests.

One interesting test was caused to be made by the discrepancy in candlepower tests made on the burners tested at Gloucester, and then tested at the United Gas Improvement Company in Philadelphia. A definite test was therefore arranged, and two lamps were selected, one with upright mantles and one with inverted mantles. A photometer was brought from the Philadelphia company, and the candlepower per cubic foot was tested at Gloucester, which at that time was a 576 B.t.u. gas.

The two lamps were then carried in an automobile to the Point Breeze works of the U. G. I. Company, and the candlepower per cubic foot of this gas was tested, which at that time was 650 B.t.u.

In the results it was found that the gas containing the fewer heat units, or 576, produced 11 per cent higher candlepower per cubic foot for the upright burner and 10 per cent higher for the inverted burner, than did the gas of the higher B.t.u. Mr. Pierce added, in his testimony, that gas of 22 candles is not satisfactory for mantle service.

The next hearing is to be Oct. 23, at 10:30 o'clock, and is expected to be the final one.

More Charters for Oil and Gas Than for Coal in Pennsylvania

Oil and gas companies are commencing to divide honors with coal companies in the chartering of new corporations in Pennsylvania. For months there have been more coal companies chartered than anything else, some of them having as high as $50,000 and $100,000 capital and some merely to buy lands underlaid with coal.

Lately oil and gas companies have been increasing, notably in the northwestern section of the state. The reason given at the capitol is that the demand for oil and gas for fuel and lighting is increasing so rapidly that operations which were not deemed profitable a few years ago are being taken up again.

Personal Notes

RICARDO NARGANES, builder of the Havana, Cuba, gas works, now the Havana Electric Railway, Light & Power Company, died in New York City, Oct. 3. He was educated in the United States and was associated in various ventures with many citizens of this country prominent in the gas industry, among them being the late Thomas J. Hayward, the late Anthony N. Brady, and R. A. C. Smith, now dock commissioner of the city of New York. During his connection with the gas industry Mr. Narganes also established gas works in other cities of the island of Cuba. Of late years he engaged in sugar production, and, at the time of his death, was vice-president and general manager of the New Niquero Sugar Company.

GEORGE H. WARING, for the past seven years vice-president and general manager of the Charleston (S. C.) Consolidated Railway & Light Company, recently resigned to accept the managership of the Utah Gas & Coke Company of Salt Lake City, a property of the American Public Utilities Company. Mr. Waring was sent to Charleston by the United Gas Improvement Company from Omaha, where he was the head of a large gas plant. He has been connected with public service companies during his business career, having formerly been with corporations in Savannah, Atlanta and Omaha. C. M. Benedict, assistant secretary and treasurer of the company, will succeed Mr. Waring as vice-president. Mr. Benedict was also a U. G. I. man. Miss M. C. C. Tessier, who has been private secretary to President P. H. Gadsden, was elected assistant secretary and treasurer. The position of general manager being abolished, J. G. Fenton has been appointed engineer of the gas and electrical departments, and will assume some of the duties previously performed by the general manager.

M. C. GREENLEAF, sales manager of the Columbus (Ind.) Gas Light Company, has resigned to enter the military service. He will be succeeded by his wife, who was recently appointed to take his place.

H. J. WATERBURY, for many years manager of the Marquette (Mich.) Gas Light Company, recently resigned. His successor has not as yet been named.

CHARLES E. BENNETT, for the past two years superintendent of distribution of the Madison (Wis.) Gas & Electric Company, has been promoted to the position of secretary and treasurer, succeeding John W. St. John, who recently resigned, as noted in the Sept. 15 issue of the AMERICAN GAS ENGINEERING JOURNAL. Mr. Bennett is a graduate of the university and after leaving school accepted a position as engineer in the fire marshal's department. George E. Wagner, clerk in the office of the general superintendent, will succeed Mr. Bennett.

H. O. GRANT has resigned his position with the Alliance (Ohio) Gas & Power Company, and accepted a position with Drake & Moninger.

OSCAR H. FOGG, who for some time has been engineer of utilization at the Consolidated Gas Company, with offices at 130 East Fifteenth Street, New York City, has recently reported to Washington for service in the army. Mr. Fogg has been made captain in the Ordnance Department and expects to sail for France very shortly.

HON. E. J. HILL, well known congressman of Connecticut, and at one time president of the Norwalk (Conn.) Gas Light Company, died recently. Mr. Hill was born at Redding, Conn., Aug. 4, 1845, and entered Yale in the class of 1865. In 1863 he joined the army as a civilian and remained until the conclusion of the war. In 1892 he received from Yale the honorary degree of Master of Arts. At the close of the war he engaged in business. Mr. Hill was serving his eleventh term in congress at the time of his death.

FREDERICK H. TREAT, president of the New Jersey Gas Company of Philadelphia, Pa., died recently.

CRAIG RIDGWAY & SON COMPANY of Coatesville, Pa., makers of steam hydraulic machinery and elevators, announce with deep regret the death of Craig Ridgway, who for the past fifty-four years has been head of the business. The concern now consists of the three surviving sons, William H., Ellis B. and Dr. Shessie W.

Societies and Associations

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS, New York Section, will hold its first regular meeting at the Engineering Building, 29 West Thirty-ninth street, New York City, on Tuesday evening, Oct. 16, at 8:15 p. m. An illustrated lecture entitled "The Evolution of Manhattan from an Indian Village to a Metropolis," will be given by T. Kennard Thomson, one of the members of the society.

THE ILLUMINATING ENGINEERING SOCIETY held its annual meeting in the Engineering Building, 29 West Thirty-ninth street, New York City, on Thursday evening, Oct. 11, at 8 p. m. A symposium on Color was given by the following six authors, each discussing the subject from a different angle: "Potentialities of Color in Lighting," by M. Luckiesh, of the engineering department of the National Lamp Works of General Electric Company; "Color from the Physical Point of View," by H. C. Richards of the University of Pennsylvania; "Color in Illumination," by Beatrice Irwin of the New Color Science Center; "The Psychology of Color in Relation to Illumination," by L. T. Troland of Harvard University; "Establishment of Color Standards," by I. G. Priest of the Bureau of Standards; and "Some Experiments on the Eye with Different Illuminants," by C. E. Ferree and G. Rand, both of Bryn-Mawr College.

Construction Notes

New Coal Gas Benches and Main at Montgomery, Ala.

Another case of army cantonments bringing big business to the gas companies is noted at Montgomery, Ala. In this city practically all the hotels and restaurants in the last few months have put in all-gas kitchen equipment, according to Harry D. Fruauff, vice-president and general manager of the Montgomery (Ala.) Light & Water Power Company, to whom we are indebted for this information.

In order to meet the supply, 3,000

ft. of 10 in. feeder main in the southern part of the city has just been completed, and two additional coal gas benches are now being installed. This work is being done by the Improved Equipment Company of New York.

New Holder Being Erected and Gas Mains Laid at Malone, N. Y.

The Malone (N. Y.) Light & Power Company are now erecting a new 50,000 cu. ft. adaptable gas holder, to increase their storage capacity. An 8 in. steel pipe for connecting the holder with the present street mains will soon be laid, with a welded joint. This journal is indebted to S. G. Hunter, superintendent, for the foregoing information.

Detroit City Gas Company Purchases Tract of Land

The Detroit City Gas Company has purchased five acres of land at the northeast corner of Tireman Avenue and the Pere Marquette Railway. This is directly across the street from the new Lincoln Motor Company plant, now being rushed toward completion. The property was sold by Joseph Braun and John F. Deacon on private terms. It is valued at about $50,000. Homer Warren & Company made the sale.

Demand Exceeds Supply—New Bench Installed at Stevens Point, Wis.

The people of Stevens Point, Wis., use gas faster than it can be manufactured at the local plant. Such was the statement of A. H. Sikes, superintendent of the Wisconsin Valley Electric Company, when asked as to why the gas in the city was shut off one day recently at a time when most needed, between 6 and 6:30 o'clock. The plant has been pushed to its utmost capacity, Mr. Sikes stated, while at the same time the number of customers for this product is steadily increasing.

The company promises its patrons a solution of the problem in the near future, however. Another gas bench has already been installed in the plant, and in about a week will be ready for service. This will increase the output by 100 per cent and fully take care of the increased business.

A reserve supply of gas is always held at the local plant and the shortage was caused by that supply being used up. The manufacture of gas was stopped for about half a day Sunday when the gas bench was being installed, which caused a large part of the reserve supply to be used. The State Normal School uses a large quantity of gas, and this, together with the shortage, caused the gas delivery to cease at the point where the necessary pressure was not available. The delivery was cut off until a small reserve could be produced.

Eight-Inch Welded Gas Main Laid by East Ohio Company

The street department of the East Ohio Gas Company recently laid an 8-in. welded steel gas main on what is known as South Rocky River bridge, Lorain Road. This bridge is at the corporation line between West Park and Fairview Village, and the floor of same is about 90 ft. above the valley and Rocky River.

The county is altering this bridge and this fact gave us an opportunity to lay our pipe on the cross supports of the new walk. The work was done in record time and in an efficient manner on account of the easy access of the location of this main.

Foreman Philip Herbold handled this work. It required over 1,300 ft. of 8-in. pipe to cross this bridge, and there are three expansion sleeves located in this line.

Coal Storage Bin and Coal Grinding Plant to Be Built at Ironton, O.

W. S. Barstow & Company has signed a contract with the Ironton Portland Cement Company of Ironton, Ohio, for the erection of a coal storage bin and coal grinding plant, also for the erection of the steel work of a limestone building. This company is engaged in the manufacture of standard grades of Portland cement, and on account of the tremendous demand had to have immediate facilities for increasing its production. Work was started five days after the contract was signed, and will be rushed to completion.

Dallas, Texas, To be Connected with New Oklahoma Field by November 1

L. B. Denning, president, and W. P. Gage, vice-president, of the Lone Star Gas Company, held a short conference recently with Mayor Lawther of Dallas, Tex., with reference to the Dallas gas supply.

Mr. Deming said that some difficulty is being experienced in making connections with the Oklahoma field because of the shortage of labor. He assured Mayor Lawther, however, that connections will be completed by Nov. 1.

There is no danger of a gas shortage, unless there should be severely cold weather before that time, the officials said. They consider the new supply ample to provide for the needs of Dallas during the coming winter.

Great Demand Makes Necessary Larger Factory for Instrument Company

The unusual demand for pyrometers and other scientific instruments manufactured by the Brown Instrument Company of Philadelphia, Pa., has forced them to make considerable enlargement to their present plant. They recently purchased a large piece of ground located on the south side of the factory. The property of the company now extends along Wayne Avenue from Windrim Avenue on the north to Roberts Avenue on the south, and will permit large extensions to the plant as required from time to time.

Company Incorporated to Build Gas Works at Washington, N. C.

Pennsylvania capital is largely interested in the gas works to be established and operated in Washington, N. C., J. E. Harvey and L. A. Waters, of Scranton, Pa., being associated with George T. Learn, of this place as incorporators of the Washington Gas Company. The company has been incorporated with $100,000 capital stock.

New Gas Office Building for Lorain, Ohio.

Plans of the Citizens' Gas & Electric Company for the erection of a new central office building on the site of the present office structure on Broadway, Lorain, O., near the Nickel Plate Railroad, were announced recently.

The new building is to be one story in height, of brick construction.

During the erection of the new building, the company will occupy temporary office quarters at 383 Broadway.